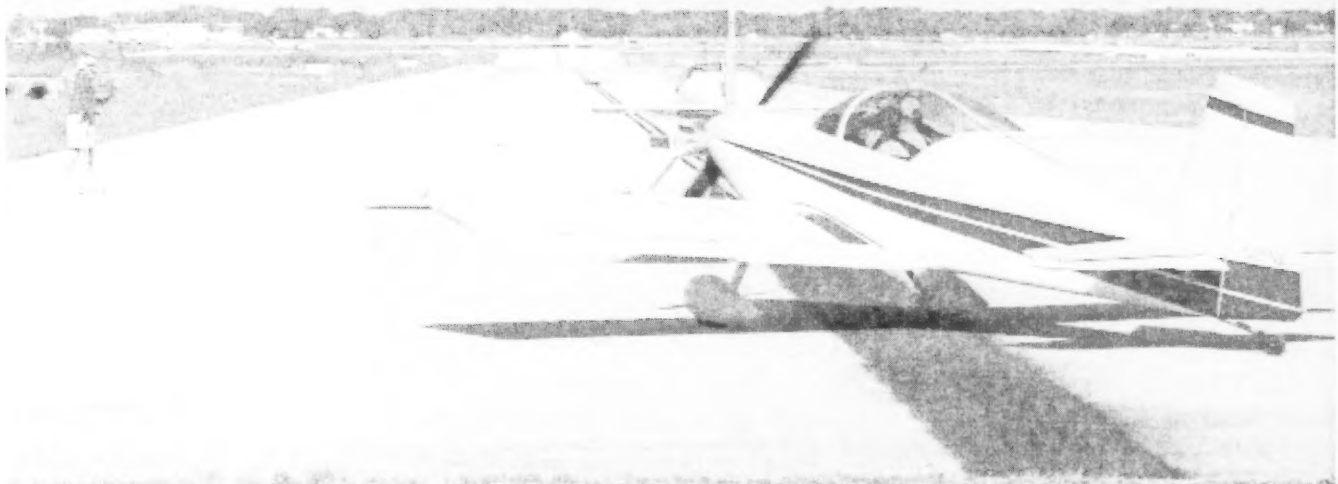
FAA Aviation News
AVIATION SAFETY FROM COVER TO COVER
APRIL 2006



Sun 'n Fun® 2006

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The FAA's Flight Standards Service, General Aviation and Commercial Division's Plans and Programs Branch (AFS-805) publishes *FAA Aviation News* six times each year in the interest of aviation safety. The magazine promotes safety by discussing current technical, regulatory, and procedural aspects affecting the safe operation and maintenance of aircraft. Although based on current FAA policy and rule interpretations, all material herein is advisory or informational in nature and should not be construed to have regulatory effect.

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FAA AviationNews

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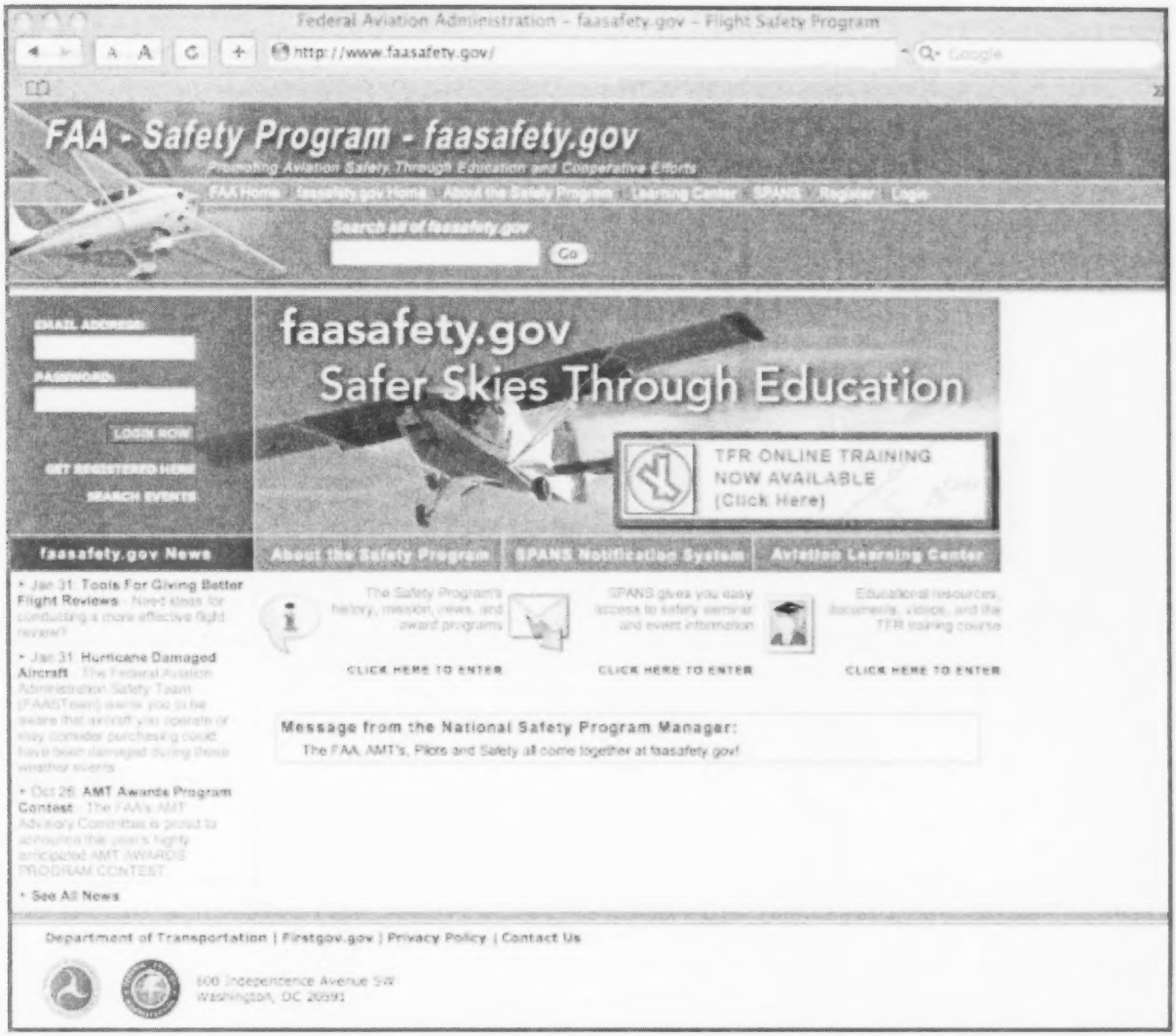
FRONT COVER: All pilots are asked to watch out for the safety of the red-shirted controllers working the runways at Sun 'n Fun (H. Dean Chamberlain photo)

BACK COVER: Three record-breaking aircraft at the National Air and Space Museum on the National Mall in Washington, DC. (H. Dean Chamberlain photo)

Introducing the FAA Safety Team

by Kathleen O'Brien and Keith Ballenger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Why Change?

On June 30, 1970, the Federal Aviation Administration (FAA) completed the evaluation of an innovative two-year conceptual program aimed at reducing general aviation accidents. From its inception, the purpose was to enhance aviation safety through public education. The success of this initial experimental program became the foundation for the industry, government, and individual collaboration known as the Accident Prevention Program, which later became the Aviation Safety Program. For the past 37 years, these programs have been a major influence in reducing aviation accidents and runway incursions.

The remarkable achievements of the Aviation Safety Program would never have been possible without the shared efforts and expertise of the volunteer "team" of individuals and organizations that bonded together to accomplish this common goal. But, advancements in technology, expan-

sion of world aviation markets and the FAA's own evolutionary quest to provide the highest possible degree of safety in air transportation while maintaining fiscal responsibility, have rendered the internal structure of the old Aviation Safety Program obsolete.

The FAA has progressed from strictly a governmental oversight entity to an organization that proactively seeks the most effective methods to promote aviation safety beyond regulatory compliance. Great success has been realized with the introduction of the Air Transportation Oversight System (ATOS) and the Surveillance & Evaluation Program for Title 14 Code of Federal Regulations (14 CFR) Part 121 air carriers. Beginning October 1, 2006, the FAA will use similar risk management and System Safety engineering principles to develop new programs aimed at reducing all facets of aviation accidents, including general aviation, with the introduction of the new FAA Safety Team, or FAASTeam.

The FAASTeam will develop systematic and targeted products to effectively reduce accidents in areas where there has been limited success in the past, or that were previously outside the scope of the old Aviation Safety Program. While the FAA will continue to ensure regulatory compliance, the best way to realize the next significant incremental reduction in aviation accidents will be through identification of risk causal factors. Then specific products and programs can be developed in partnership with the aviation community, to systematically reduce or eliminate those risks.

How Will This Change Occur?

The FAA's mission is to provide the safest and most efficient aerospace system in the world. Today, this is being accomplished using a concept called System Safety and its core value of risk management. System Safety simply says that a product will be safe when, and only when, it is designed that way. In other words, safety cannot be inspected into a product. It must be built in from the beginning.

FIGURE 1 - RISK EXPOSURE

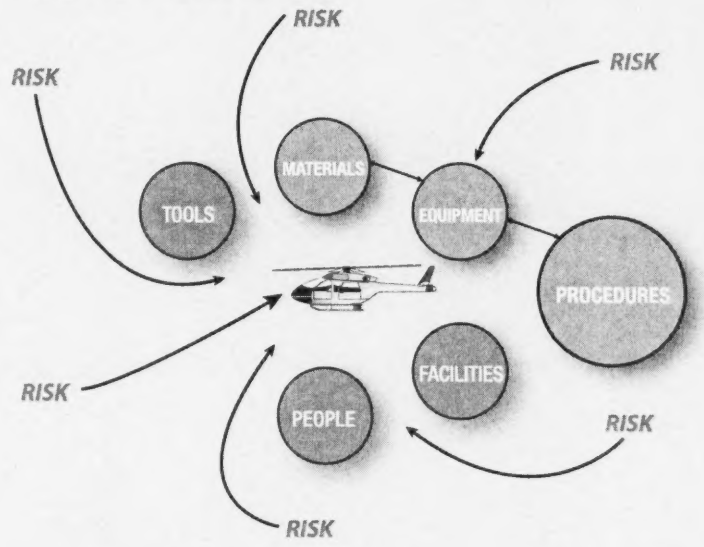
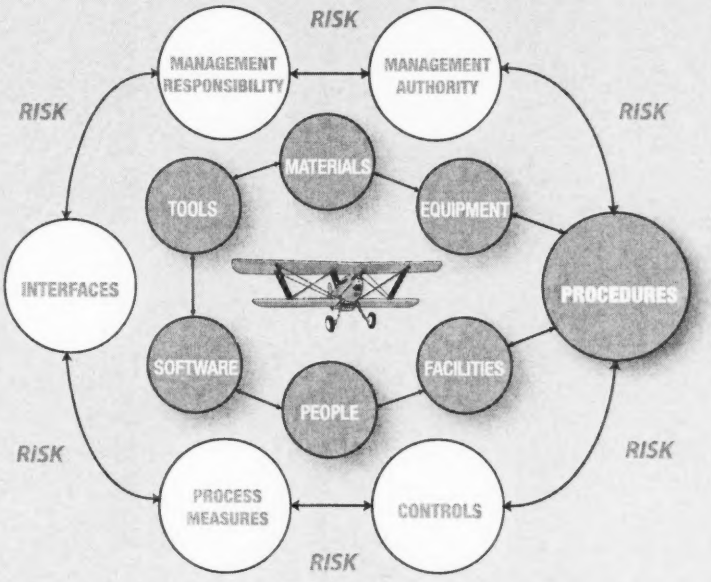


FIGURE 2 - SYSTEM SAFETY CONCEPT



Applying System Safety principles is a deliberate and calculated process.

For System Safety to work, it assumes that the organization that produces or manages a product has a fully functioning system. It must have the people, materials, equipment, tools, software, and facilities to support its product and they have to be in good working order. That's one of the basic challenges for general aviation. An individual owner/operator doesn't always have an organized "system" to function within or readily available to guide them in their aviation endeavors.

Secondly, when the system exists, it must be continuously protected from unnecessary and unwanted risk by applying risk management techniques. The organization or individual must constantly be looking for concerns or hazards that have some likelihood of occurring, and that would have any degree of severity.

Again, many general aviation operations are constantly exposed to risk because they have little or no system to support their operation. Risk management sometimes consists of as little as a weather briefing, so it's no surprise that this segment of aviation accounts for the highest fatal accident rate. (See Figure 1)

When there is a complete and well functioning system, then we can begin to apply risk management principles. You have a solid foundation to work with that can be readily adapted or modified to meet risk. It's then, and only then, that System Safety attributes can be effectively applied.

System Safety builds a safety net around your system. It assures that someone is held responsible for safety and has the authority to ensure its continued use. It guarantees that there are detailed procedures to be used and not just policy statements, a culture of corporate history, or just good intentions to accomplish goals.

System Safety then makes sure that there are controls in place to see that the procedures are being followed, and that there are process measures to make sure you are getting what you want from your system. Finally, System Safety demands that there are interfaces between the various components of the system, so they are all "singing the same tune". (See Figure 2)

While System Safety is much easier to apply to larger organizations with depth of resource, it still translates directly from the mega air carrier to the individual general aviation owner/operator. The way the FAA Safety Team will encourage the use of this new philosophy will be through Safety Management Systems.

A Safety Management System (SMS) is an integrated set of work practices, beliefs, and procedures for monitoring, supporting, and improving the quality of safety and human performance in an organization. Safety Management Systems recognize the potential for errors and establish robust defenses to ensure that errors do not result in incidents or accidents. For example, analysis of risks common to general aviation aircraft operations shows that 75.9% of the fatal accidents occur in personal flying. Of that number, coincidentally, 75.9% are pilot induced. Finally, the category of flying that historically is the most lethal is weather related and, according to the AOPA Air Safety Foundation's 2004 Nall Report, continued visual flight rule (VFR) flight into instrument meteorological conditions (IMC) accounts for 87.5 % of those accidents. It doesn't take much analysis to realize that if we can design a Safety Management System that includes specific defenses against continued VFR flight into IMC, we can immediately realize a huge reduction in fatal accidents.

How would that be applied to you as a general aviation owner/operator? It would most likely begin with a FAASTeam safety seminar that points out the hazards of continued VFR flight into IMC, targeted for a spring or fall presentation where these accidents are most prevalent. More in-depth information could be conveyed through a course of on-line training, made available through the Aviation Learning Center, along with specific tools to help you use an aeronautical decisionmaking process to avoid this type of hazard. The Web site is <www.faasafety.gov>. These tools already exist in various forms, like the "3-P" Risk Management Process (Perceive, Process, Perform) and the "PAVE" Personal Minimums Checklist (Pilot, Aircraft, enVironment, External Pressures). Finally, practical applications of these tools could be made available for you to apply your knowledge in a no risk environment. The application of your newly acquired skills and tools would be accomplished using flight training devices or personal computer aircraft training device-based scenarios, guided by an instructor.

By managing risk in this manner, we can help you build relationships that will form your own system of protection with procedures, equipment, materials, tools, software, people, and facilities, the same way airlines do. The new FAASTeam Safety Management System products will promote collaborative partnerships that will aid you in identifying and avoiding hazards that can lead to accidents. Your personal SMS could include:

- Detailed inspection record/checklists recommended by your mechanic or fixed base operator for assuring aircraft airworthiness status and determining the aircraft's condition for safe flight. This could include repetitive airworthiness directives and time-life limited components.

- Formalized weather briefing documentation, recorded and compared to established personal minimum checklists to aid in making objective "Go / No Go" decisions.

- Procedures for use of passengers as Crew Resource Management sources.

- Routine and documented post-flight reviews for risk analysis and adjustment of personal minimums.

- Regularly scheduled skill im-

provement training sessions with appropriate flight instructors in areas where you have performed self-analysis and identified needed improvement.

- Identification of methods and procedures to recognize "triggers" of accident chain events and predetermined escape methods.

While the safety tools we have advocated in the past are still valid today, the emphasis of the FAASTeam will be in the way these tools are produced, offered, utilized, and improved. Our success will be dependant upon creating a support system that will enable you to adopt and easily use the tools and that provides feedback so that your newly developed safety management system can be constantly improved. The faasafety.gov Web site will be the link to providing that feedback.

www.faasafety.gov

Delivering information and training to airmen when they need it, in an easily accessible format, is essential to the FAASTeam implementation. The <www.faasafety.gov> Web site will be the FAASTeam cornerstone for collection and dissemination of critical aviation safety information. The Web site is designed to respond to national, regional, and local airmen needs. When you sign-up, you can specify your preferences for the kinds of information you wish to receive and specific geographic areas. The Web site currently includes:

- Immediate notification of localized or national safety situations that affect you
- Safety Program Airmen Notification System (SPANS)
- Airmen educational courses, readily available in an open, user-friendly format

A good example of the type of courses that will be provided in the Aviation Learning Center is "Navigating the DC ADIZ, TFRs, and Special Use Airspace." This course is a thorough review of the Washington ADIZ and TFR specific regulations along with general information governing Special Use Airspace. Each chapter is clear and concise with appropriate graphics and background documents. After completing the course you can test your knowledge with the attached exam and print out a certificate of successful completion. As FAASTeam programs develop and expand, airmen will be able to use this educational resource to build their knowledge on a variety of subjects that have been identified as critical risks to flight safety and to assist them in managing those risks.

Who'll Make It Happen?

The transition period from the Aviation Safety Program has already begun. One of the main questions being asked is, "What will happen to the Aviation Safety Counselors when the Aviation Safety Program sunsets?" The answer is that the FAASTeam will still need enthusiastic, dedicated, and motivated persons and organizations to join the FAA Safety Team. These new volunteers will be called FAASTeam Representatives and Partners. They will be instrumental in producing, coordinating, and mentoring Safety Management System programs ranging from 14 CFR Part 121 air carriage to Light Sport aircraft operation and maintenance.

The major reason why the counselor designations will expire on September 30th, 2006, is that there will no longer be a Safety Program Manager position. Instead, the FAASTeam will be selecting FAA inspectors as new FAASTeam Program Managers based upon a number of requirements including areas of subject matter expertise, airmen domicile populations, numbers of resident air carrier and air agency certificates, accident statistics and trends, along with geographic considerations. The reality is that there may not be a FAASTeam Program Manager (FPM) in every Flight Standards District Office (FSDO). Some of the new FAASTeam Program Managers will have responsibility for geographic areas that include more than one FSDO district.

The new FAASTeam Program Managers will be actively seeking volunteers from the aviation community to act as FAASTeam Representatives and Partners. These persons will be highly respected and proficient individuals who are passionate about managing a FAASTeam program within their geographic area of responsibility. FAASTeam Lead Representatives will direct and guide FAASTeam Representatives in the accomplishment of programs developed and sponsored by the FAA Safety Team.

Getting Started

As with any type of change, initial uncertainty or skepticism is normal. But the FAA Safety Team will build on those areas where we have been very successfully in the past and build new programs for areas of risk that have yet to be addressed. However, the new FAA Safety Team's success is wholly dependant on the partnership between the FAA and the aviation community working together to make measurable advances in aviation safety. These successes will be impossible without the collaborative effort of businesses and individuals with a shared passion for aviation and who champion safety. Working together, we have the opportunity to continue what has succeeded in the past, while making new and significant progress never before possible.

The FAA Safety Team will be just that, a team of individuals, business, and government working toward a common goal. Come join the team!

Kathleen O'Brien is the Safety Program Manager for the Flight Standards District Office in Long Beach, California, and Keith Ballenger is the Western-Pacific Regional FAASTeam Manager.

MARK YOUR CALENDARS

Sun 'n Fun® 2006

story and photos
by H. Dean Chamberlain

The dates of this year's Sun 'n Fun Fly-In are April 4 to 10. By the way, if you have not made your travel reservations, the time is running out for finding a nearby motel. If you plan on flying to Lakeland, Florida, for the event, now is the time to start planning your flight and collecting your trip information. For those of you whose flight takes you near the Washington, DC, area, you need to review the latest information about the Washington Air Defense Identification Zone (ADIZ). Pilots who violate the Washington ADIZ and other special use airspace in the greater Washington area, such as the Prohibited Area (P-40) over Thurmont, Maryland, can expect an unwelcome escort by a military or law enforcement aircraft. The FAA offers an online course at <www.faasafety.gov> that would be a useful refresher on this subject (See page 35 for details). Of course, all pilots need to check for any last minute temporary flight restrictions (TFRs) that might impact their whole route before any flight.

The annual FAA *Notice To Airmen* (NOTAM) for the event has been published. You can find it on the FAA's Internet Web site <www.faa.gov>, the Orlando Flight Standards District Office Web site, and the Sun 'n Fun Web site <www.sun-n-fun.org>. The effective dates of the NOTAM are April 2 to 10. Please note the NOTAM implementation date is before the public opening of the Fly-In. The earlier implementation date allows the airport to

shut down select runways and navigation aids in preparation for the event.

The NOTAM has specific procedures for the different types of aircraft expected at the Fly-In. For example, there are procedures for VFR and IFR airplanes and those airplanes without radio. There are special procedures for ultralight vehicles, helicopters, warbirds, and high performance aircraft. Several of these aircraft types have their own special areas of the airfield reserved for their use with their own entry and exit procedures. Seaplanes will be operating in and out of Lake Parker.

An important part of the NOTAM is the list of air traffic control facilities, their frequencies, their locations, and periods of use in the central Florida area. The FAA will have a temporary non-automated Flight Service Station (FSS) located in the FAA Safety Center on the south side of the airport within the Sun 'n Fun area of the airport for weather briefs and flight planning and filing from April 3 to 10 from 0600 to 1900 hours local. The temporary FSS will be open on April 11 from 0600 to 1400 hours local. Pilots need to review the NOTAM for flight plan filing, VFR and IFR, and when and how to close both VFR and IFR flight plans. The St. Petersburg Automated Flight Service Station (AFSS) is available for complete services 24 hours a day by dialing 1-800-992-7433 in the local area or by using the direct dial telephone on the west end of the FAA Safety Center building.

For those pilots flying to the Lakeland Linder Regional Airport (LAL) for the Fly-In, the following are some of the general guidelines listed in the NOTAM.

• Because of the number and different types of aircraft, each with its own unique flight requirements, flying to and from the Lakeland and central Florida areas during the Fly-In, all pilots flying in those areas are advised to watch out for other aircraft in all quadrants. Some of those aircraft may not have radios or transponders.

• For aircraft without transponders, there is a special procedure for flight along the Mode C Veil of the Tampa and Orlando Class B airspace. Remember, entry into Class B airspace requires ATC authorization.

• To help others see your aircraft, pilots are asked to turn their landing lights on within 30 miles of Lakeland.

• A waiver for reduced separation standards for category 1 and 2 aircraft is in effect. These are primarily single- and light, twin-engine aircraft.

• Be aware of the airport's displaced thresholds and multiple touchdown spots. ATC will specify which spot to use. The NOTAM shows which runways and taxiways can and cannot be used.

• The control tower will be open and the Class D airspace will be in effect from 0630 to 2130 hours local.

• The special NOTAM procedures will be in effect from 0700 to 2000 hour local from April 2-10.

• Do not operate in the Class D airspace south of the airport. Other aircraft operations and procedures will be in effect in that area.

• Air Traffic controls the north side of the airport. Sun 'n Fun controls the south side of the airport.

• Prepared aircraft parking signs described in the NOTAM will expedite your parking.

• Any type of student and practice flights are "highly discouraged" during the Fly-In.

• Limited grass field operations are available during the Fly-In. See the NOTAM for details.

• Tie-downs are required. You need to bring your own.

• The south side of the airport is closed from 1930 to 0630 hours local from April 2-10.

• The airport is closed each day

from April 4-10 for the air show. The air show area is from the surface to 10,000 feet MSL within a five statute mile radius of the airport. The hours each afternoon from April 4 to 9 are from 1345 to 1730 hours local. On April 8 there is also a night show from 2000 to 2200 hours local. On April 10, the show hours are from 1145 to 1400 hours local.

• Because of the number of departures after the air show, arrival traffic is not normally accepted until 1800 hours local.

• Special permission from the airport manager, Sun 'n Fun, or Air Traffic Control is needed for any arrival or departing traffic while the airport is closed for the air show.

• Runway 5/23 is closed from March 31 through April 12.

• Closed taxiways are marked with orange cones.

• The ILS and NDB/GPS Runway 5 approaches are shut down from March 31 through April 12.

• The VOR Runway 9 is shut down from March 31 through April 12.

• Do not make unnecessary radio transmissions where procedures state, "monitor the frequency only."

• Rock your wings with "gusto" for airborne acknowledgements.

• After landing, do not stop on the runway. You need to clear the runway quickly.

• Do not stand on, near, or walk across runways.

• Watch out for and comply with the hand signals of the red-shirted air traffic controllers working the runway for landing or departing traffic.

• During this period, an IFR reservation system is in effect for Lakeland and nearby airports. The NOTAM has complete details for IFR flights to and from the Lakeland area and for select IFR operations along the U.S. southeast coast.

Flight Service Station Support

The following guidelines relate to maximizing the best way to utilize your flight planning support.

• Inbound VFR flights should include an extra 30 minutes to the estimated time en route to allow for any unexpected delays at Lakeland.

• Pilots should make sure the color of their aircraft is listed in the remarks section of the flight plan.

• Pilots are asked to close their flight plans while airborne with the appropriate Flight Service Station because of possible delays in parking.

• The NOTAM lists the appropriate frequencies and process to use for contacting Flight Service for opening and closing flight plans.

• Because of the volume of traffic, pilots are asked not to air file or ask for complete weather briefings airborne during the hours of 0600 to 1900 hours local with the St. Petersburg AFSS.

• IFR pilots who don't close their flight plans airborne and retain their IFR clearance until landing must contact Tampa Approach on 120.65 MHz after exiting the runway to cancel their IFR clearance.

• Pilots are asked to monitor 121.5 MHz while airborne and before securing their aircraft to check for any inadvertent ELT activation or actual accident. En route, any 121.5 MHz ELT signal with its distinctive alert sound should be reported to the nearest air traffic facility along with the time and location of first hearing the alert, hearing the strongest signal, and hearing the last signal.

• The NOTAM includes a section listing the Lakeland and surrounding airports where airfiles and changes in destinations for IFR flights will not be accepted except in case of an emergency.

• The frequency for contacting the Lakeland temporary FSS (Lakeland Radio) is 122.05 MHz during the Fly-In to activate and close VFR flights. The hours of operation are 0600 to 1900 hours local.

Lake Parker VFR Arrival Procedure

The single most important arrival procedure for aircraft arriving at Lakeland for Sun 'n Fun is the Lake Parker VFR Arrival Procedure. The reason is most of the VFR airplane traffic will use the procedure as well as those IFR arriving flights when conditions are reported at or above 3,000 feet and five miles visibility.

The NOTAM explains the Lake Parker procedure in detail. If you have not flown the procedure in several years, the current procedure goes from the Power Plant at Lake Parker westbound to Interstate Highway 4 (I-4), then southwest bound along I-4 for about three miles. At the golf course on your left, turn due southbound for the airport. The golf course is about three and a half miles north of the airport. Head for the blue-roofed terminal building at the airport. You need to keep the orange water tower off your right side and the "cake" water tower off your left side. No side-by-side flying is permitted inbound from Lake Parker. All aircraft are to remain in trail for safety purposes.

The NOTAM explains in detail the altitudes and airspeeds each type of airplane is expected to maintain. The NOTAM has photographs of the procedure for pilots to review.

ULTRALIGHT VEHICLES AND HELICOPTER OPERATIONS

The NOTAM provides special procedures for ultralight vehicles and helicopters. Basically, these procedures call for ultralight vehicles to enter the south side of the airport from the south-southwest corner and cross East-West Road below 500 feet above ground level (AGL). Ultralights are to remain west of the large airport buildings.

Helicopters are to enter the southeast corner of the airport from the southeast at or below 500 feet AGL and remain east of the large airport buildings.

Although all of this traffic is separated by the large buildings on the south side of the airport, at and below 500 feet AGL, this traffic needs to watch out for other types of aircraft, including certain warbirds, that will be approaching the south side of the airport inbound from the south above these altitudes.

Sun 'n Fun® 2006

The FAA Production Studios presents the

FAA Forum Schedule*

for SUN 'N FUN 2006 "The Joy of Flight"

Slot	Tue April 04	Wed April 05	Thu April 06	Fri April 07	Sat April 08	Sun April 09	Mon April 10
1 0830	Did Your Instructor Mention This Walt Schamel	Summer Savvy Steve Brady	"Why Engines REALLY Quit: The Top Ten Reasons" Bruce Edsten	Space-Based Navigation Systems Larry Oliver	Sport Pilot Van Stumpner Aircraft Certification Process	Bahamas Greg Rolle Flying The Islands Of The Bahamas	
2 1000	Bahamas Greg Rolle Flying The Islands Of The Bahamas	Runway Safety Luis Castro	AOPA-ASF The Last Five Miles Doug Stewart	Maintaining Your Medical Dr. Fred Tilton Federal Air Surgeon	AOPA-ASF Maneuvering Flight Doug Stewart	SPANS www.faasafety.gov James E. Pyles	
3 1130	Avoiding the Solo Landing Accident - Prevention Through Understanding Diego Alfonso	FAA Sport Pilot Update Larry W. Clymer	The Kings on Practical Risk Management John & Martha King	AOPA-ASF Do the Right Thing — Decision Making for Pilots Doug Stewart	AOPA-ASF Single Pilot IFR Doug Stewart	Advanced Cockpit Paul Fontaine	Finale Ben Coleman Recap of Sun 'n Fun 2006 Airshow & Events
4 1300	Air Defense-Operation Noble Eagle USAF Major Chris Morton	Hazardous Attitudes and Aeronautical Decision Making Doug Stewart	Flight Training Sandy & Jo Ann Hill Rusty Sachs - NAFI	Meet The FAA	The Pilots Guide to Rotax Aircraft Engine Maintenance Phil Lockwood	Mexico Rick Gardner Flying Mexico	
# mtg	**4**	**4**	**4**	**4**	**4+1=5**	**4**	**1 (26)**

Sun 'n Fun Gala – Mon -3rd / Opening Ceremonies: Tue the 4th / Seaplane Splash-In: Thu/Fri @ Lake Parker / Balloon Launch Briefing: Saturday, 0630/ Forum Open: Daily, 0800 / Night A/S:- Saturday

We will simulcast all or part of some of the presentations on Sun 'n Fun Radio 1510.
Look for presentations on ATN, The Aviation Training Network, GETN, The Government Educational Training Network & FAN, The Florida Aviation Network on March 20, April 03 at 11:00 Eastern and April 04,05,06,07, & 10 at 11:30 Eastern
**Subject to Change*

Check our web site for updates: http://faaproductionstudios.com/
For our year round programs & schedule please see:
http://faaproductionstudios.com/
http://www.faasafety.gov

For Broadcast information please see:
http://www.floridaaviationnetwork.com/

Are You Flying For Dollars?

story and photos by Doug Gilliss, JD, ATP

Pilots work hard for their first license and all the ratings they receive after it. Every certificate brings with it pride and a sense of accomplishment. They enjoy flying and soon begin to ponder the possibilities of flying and getting compensated for it at the same time. Of course, many pilots obtain Commercial and Airline Transport Pilot certificates and do just that. They make flying a professional career. Other pilots may fly as a private pilot or fly experimental airplanes, occasionally considering the possibilities of receiving cash or some consideration for their flying. Let's examine when that's permitted and when it's not.

Private Pilots

First, let's look at the circumstances that a private pilot, flying a standard category aircraft, may see dollars or other benefits coming their way—all of which happen to be exceptions to the general prohibition of private pilots accepting compensation for flying an aircraft as pilot-in-command where persons or property are carried (Title 14 Code of Federal Regulations (14 CFR)section 61.113).

1. Incidental to Business—Not so controversial is the "incidental to business or employment" exception where the pilot may fly an aircraft in the conduct of his/her business, so long as the flight is incidental to that business, not the business itself. Nor may passengers or property be carried for compensation or hire on the flight.
2. Pro Rata Share of Operating Expenses—If a pilots receives contributions from passenger(s) equal to their equal share of the direct expenses of the flight (limited to fuel, oil, airport expenses or rental charges), so they pay not less than their pro rata share of those expenses, the flight is not deemed for compensation or hire. Recovery of capital expenses, such as amortizing hangar rental or insurance costs, are not considered direct operating expenses.
3. Search and Rescue—Pilots participating in search and rescue operations sanctioned by local, state, or federal agencies that conduct such operations may receive reimbursement for aircraft operating expenses, similar to the pro rata share lim-

itations: fuel, oil, airport expenditures, or rental charges

4. Aircraft Sales—A Private Pilot, with 200 hours of flight time or more, acting as an aircraft sales person is permitted to demonstrate an aircraft for sale to a prospective buyer. There is no assumption of compensation.
5. Charitable Airlift—Charitable organizations raise money occasionally by accepting volunteer pilots to fly the general public. (Real charitable organizations; ones that have an IRS § 501 (c) 3 tax exemption, not just a good, local cause for raising money.) The passengers make contributions to the organization in exchange for their flights. These flights must be conducted under 14 CFR section 61.113 (d), which requires, among other limitations, a seven-day advance application to the local FSDO, no formation or aerobatic flights and specifies only standard category aircraft.

Key Terms

Reviewing the exceptions for Private Pilots helps set the tone for understanding other limitations for receiving compensation for flying passengers or property. Closely scrutinizing the key terms will give us more insight into how they are interpreted. For example, the term "compensation" is interpreted to include much more than dollars and cents. For many years cases have set the precedent that compensation encompasses a wide range of benefits—almost anything of value. Specific examples have included: tax deductions, free flight time in rental aircraft, fuel or credit at an FBO, even the fact that a person may "owe" the pilot a favor for their services as a pilot. For example, if the pilot receives a tax deduction for contributing to a 501 (c) 3 tax-exempt organization, albeit no cash, fuel or services, such as a flight benefiting a museum or hospital, that is still considered compensation. Compensation has also been interpreted to include

reimbursement for fuel on a flight for a medical emergency trip to a hospital. If a benefit, even a theoretical one, is received, such as a favor owed, that's compensation.

Another term worth examining more closely is "pro rata share" or splitting expenses. The application of this expense sharing concept is limited to flights that, most likely, would have occurred without the expense sharing. In other words, the pilot and passengers are flying to a destination the pilot determined. Even a pro rata share of the expenses that is applied to flights that only the passenger desired to fly to are, essentially, commercial flights. A simple test is to apply the "common purpose" standard. Are both the pilot and passenger going to a destination that benefits each—not just flying to a location the passenger determined?

Experimental Aircraft

Many aircraft certified under the Experimental Exhibition category offer intriguing possibilities to pilots and the public alike, particularly the chance to fly in a former military jet fighter or trainer that can demonstrate performance that far exceeds light aircraft. Combine that with the fact that these aircraft are also, by almost any standards, expensive to fly and operate, consuming 10-20 times the fuel of light aircraft. The result is that many owners of these high performance jet aircraft seek to reduce their operating costs—and there is no shortage of willing participants from the pilot community and the general public to make contributions. A tempting combination. Let's review the applicable regulations and determine when receiving compensation is permissible.

Similar to the Private Pilot restrictions on flying for compensation or hire, Experimental aircraft are, generally, prohibited from carrying passengers or property for compensation or hire (14 CFR section 91.319) by any person, Commercial and Airline Transport Pilots included. Passengers may be carried, but owners and pilots may not "sell rides." And, like the 61.113 restrictions, there are exceptions.

Training

To earn a rating in an Experimental category aircraft, it is necessary to receive training. It also makes sense to provide for legally compensating an instructor providing those services. The Experimental Aircraft Association (EAA) arrived at that conclusion and then legally pursued the matter several years ago, receiving a exemption for paid instruction in Experimental aircraft. Provision was made for that logical conclusion in the latest change to 14 CFR section 91.319, eliminating the need for individual exemptions. So training is one of the permissible activities for which a passenger may be charged a fee.

Limits

Some further interpretation or analysis would be beneficial to add a good faith limit on this exception that authorizes fees. For instance, instructing a person with no Student Pilot license or someone with that certificate and 20 hours of flight time in an aircraft that has a prerequisite of 1,000 hours of flight time before taking a flight exam for a rating to fly the aircraft, seems unrealistic. In fact, flying non-pilots or very low time, inexperienced pilots and charging for "instruction" would appear to be an attempt to stretch the regulation permitting fees for instruction beyond its reasonable limit. Assuring the "student" has a reasonable probability of applying the training and obtaining an aircraft rating (or concluding that it is not something they want to do, even though qualified by flight hours) will keep the flight training for fees inside the prescribed limits.

Another issue surfaces when training pilots in Experimental category aircraft. Some of the high performance jet aircraft, usually referred as Surplus Military Turbine Powered Aircraft (SMTPA), are used for training pilots in recovering from unusual attitudes, or in airline parlance "upset training." As a result of air carrier and corporate jet accidents and increased emphasis on pilot proficiency, the training seems to be well accepted as having the potential to increase safe operations.

Pilots simply wanting to experience a loop or roll in an aircraft can probably do so with an instructor and aerobatic light aircraft at almost any general aviation airport. However, realistic recoveries from jet aircraft in an upset condition are probably better accomplished in jet aircraft. So that type of training seems not only warranted, but a contribution to safety.

The area of concern presents itself in two directions. One, is the upset training really upset training—not just flights of amusement by those who are seeking a thrill from high G aerobatics? Two, is the training that is offered something that the participant is suited for? For example, if the supposed upset training invites inexperienced or non-pilots to experience inverted flight or aerobatics in an Experimental-certified SMTPA for a substantial fee (and there are plenty of willing participants), it would most likely slip into the selling rides category and not be authorized. That is not to say that there may be several legitimate upset training businesses. They would offer real training to pilots who would find it relevant to their careers.

Closely related to the upset training issue is the "simulated air combat" training offered by some SMTPA operators. If the service provided is merely a tail-chase flight between two non-pilots, with instructors in the back seats encouraging their pseudo military combat antics, safety suffers and the situation is no more than a thrill ride business.

Aircraft For Rent

Generally, Experimental category aircraft may not be rented or leased. However, relatively new in the regulations governing Experimental category aircraft is the ability to receive a fee for aircraft used in training. Like the use of standard category aircraft for training, where fees are charged, this provision seems to make sense. The aircraft owner/pilot/instructor may, if they receive a letter of deviation under 14

CFR section 91.319 (h), charge a fee for use of his/her aircraft for flight training. Only for flight training and only with the letter of deviation may fees be charged. FSDOs will issue the letters under the guidance of their operations manuals.

Exhibitions

Most of the SMTPA jets are certified in the Experimental Exhibition category. That's the basis for their airworthiness certificate. So it only makes sense that these aircraft are not only permitted to be exhibited, but by policy (FAA Order 8130.2F) owners are encouraged to exhibit them. Fees for exhibitions are not an exception from 14 CFR section 91.319, but present a different situation. Without transporting passengers or property for hire (prohibited by 14 CFR section 91.319), there is no such restriction on exhibition. You can display the aircraft and get paid a fee—or fuel or some other benefit. That display may include a static display or flight exhibition.

No rides for passengers, no conflict with the federal aviation regulations. However, there are some areas for concern. For example, receiving fuel for an appearance or demonstration flight, or cash for that matter, is fine. However, accepting an offer like: "We'll add a few hundred gallons of fuel to your allocation, if you take Bobby Joe, one of our big sponsors, for a local flight." Now you are accepting fuel for a passenger-carrying flight—receiving compensation for transporting a passenger, this is essentially back to the "selling rides" scenario. Pilots are advised to avoid that sort of temptation, which certainly exists from an effort to please air show managers and sponsors, plus an opportunity to demonstrate the aircraft with free fuel.

Another issue related to receiving compensation sends us back to Private Pilot privileges. While flying and receiving compensation for exhibiting or demonstrating an Experimental Exhibition category aircraft is permissible under 14 CFR section 91.319, there is a question of the compensation issue if the pilot is licensed as a Private Pilot. No problem for a Commercial Pilot. Be certain to check with the FSDO representatives monitoring the air show; they will likely confirm that interpretation.

Special Exemptions

So, pilots who go to an air show and see an aircraft that is obviously a former military aircraft and is most likely flying under an Experimental Airworthiness certificate (or other restricted airworthiness certification) offering rides for compensation may wonder: "How can they do that?" I will explain now. You may see, for example, a B-17 operated by a non-profit organization, such as the one flown by the EAA, that has applied for and received a exemption from 14 CFR section 91.319 and other relevant regulations. Specifically, there are a few such aircraft that have shown by petition to FAA that they have substantial historic value. Consequently, they have requested a unique exemption from the relevant federal aviation regulations to ". . . operate the B-17 for the purpose of carrying passengers for compensation or hire on local flights for educational and historical purposes."

The exemption is not granted simply by a request but must be supported by operational, maintenance, and safety practices that are thoroughly documented for a non-profit organization. Do not expect to receive such an exemption unless the aircraft the organization expects to operate for compensation or hire has both the historic value and the documented operational, maintenance, and safety standards required.

Photography

An activity that can generate compensation for Experimental aircraft is photography. Generally, it is considered incidental to the flying, or it is an exhibition of the aircraft—each a permissible use of the airplane for compensation. Let's address the good faith limit on this exception to the prohibition on receiving compensation. Realistically, taking along a throw-away camera and shooting a few snapshots of a passenger does not qualify for a "photography" flight. Usually a photography flight would be a serious movie or video venture that was intended to be something other than a fun flight with a take-home video clip. Serious video or movie efforts fall into a different category—probably a commercial venture with adequate equipment, adequate capitalization, and adequate safety precautions. An easy way to determine the permissibility of receiving compensation is to look at the true purpose of the flight: is it for taking photos, a movie, or video? Or just a ride with some photo documentation?

Exhibition Flights

Exhibition flights are often conducted at air shows. There may be additional regulations that apply to these flights limiting passengers from occupying seats, being approved to fly in waivered airspace, flying formation, or other restrictions. Just because it is an exhibition of the aircraft does not eliminate other restrictions. Be certain to comply with those limits as well as the one for receiving compensation.

Check Regulations

Hopefully, this review of the limitation on Private Pilots and pilots and operators of Experimental Exhibition aircraft has been helpful. When in doubt, check the regulations or call the local Flight Standards District Office. Knowing when compensation is permitted will keep the public protected and pilots free from scrutiny.

Douglas Gilliss is a former USAF pilot, with Airline Transport Pilot (LR-JET) and CFII certificates, with Experimental Aircraft Ratings in AV-L29, AV-L39, CA HA-200 and N-T28 with more than 5,500 flight hours. He is a Designated Pilot Examiner for Experimental Jets and Safety Counselor. He holds Master of Business Administration and Juris Doctor Degrees and serves as Chairman of the Board of the Classic Jet Aircraft Association.

FITS-Is Here by Tom Glista

This article is an update on the FAA/Industry Training Standards (FITS) program. Since it has been a while since I wrote about FITS, the following is a brief overview of the FITS concept.

Historically, major leaps in general aviation technology and/or capability have been accompanied by an increase in related general aviation (GA) accidents. For example, in the 1940's there were accidents involving the then new high performance Beechcraft *Bonanza*. In the 1950's, the new light twins caused an increase in GA accidents. In the 1960's the new business jets were involved in more accidents. The single-engine Grumman *Yankee* had a higher accident rate compared to similar type aircraft in the 1970's. The Piper *Malibu* was involved in several high profile accidents in the 1980's. The same was true of the Cirrus aircraft in the '90's.

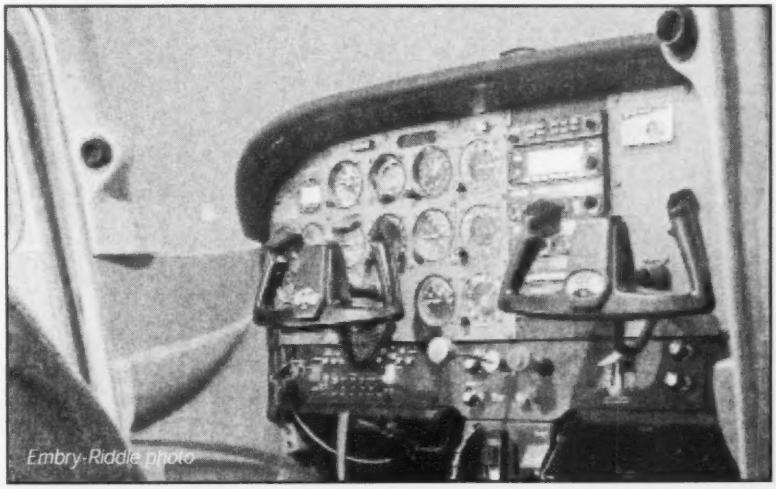
The GPS systems and glass cockpits being installed in today's GA aircraft is the next leap in GA technology. The FAA wanted to do something about this new leap in technology before this new technology caused an increase in the GA accident rate. Studies were conducted, and the collected data were analyzed. The results were as expected. Most GA accidents are still caused by pilot error.

The next thing we had to figure out was what was causing the pilot errors. We sent teams to visit organizations that have the lowest accident rates. The teams visited air carrier and military training programs to learn what they were doing and what GA was not doing. Not only did we visit air carriers and military training facilities, we researched zero error tolerant operations like nuclear, fire, and police organizations. The main differences between the training they gave and traditional GA pilot training was that these organizations used scenario-based training (SBT) rather than what we called maneuvers- based training (MBT). Further research that looked at both of these methods further supported the need for incorporating scenario-based training in general aviation pilot training. The FITS team then began adapting what they learned from these other operators and industries into general aviation training.

The question became one of how can SBT improve flight training? Done correctly, the research indicated that SBT can more quickly develop the pilot aeronautical decision making, risk management, single-pilot resource management, and situational awareness skills needed in today's National Airspace System (NAS). The concepts of scenario-based training, single pilot resource management, and learner-centered grading are required criteria for FITS acceptance of a flight-training syllabus. To answer the question I get all the time, no, we are not eliminating skills practice. It is important that pilots have psychomotor skills (stick and rudder). FITS incorporates skill development into realistic scenarios. Within the FAA's Principles of Learning this is known as the Principle of Intensity. For additional information on these concepts, you can go to the FITS Internet Web site at <http://www.faa.gov/education_research/training/fits>.

So, where are we now? In my last article, I reported that Middle Tennessee State University (MTSU) pilots averaged about 90 training hours for a combined private/instrument training course (in a FITS- accepted course approved under Title 14 Code of Federal Regulations (14 CFR) section 141.57, special curricula). This was all aircraft flight time since MTSU did not have any simulation devices. A second cadre of students went through the same program, but this group also used a Level 6 Flight Training Device (FTD). Thirteen of these students have completed the course with an average of 64.1 flight hours and 13.7 FTD hours. To me, 77.8 hours total time is amazing since it is estimated that the national average number of flight hours for only a private pilot certificate is around 70 hours. What is also eye opening is that the courses were identical, except for the FTD. The students who substituted some flight time with FTD time required even less overall training time. I know that the average person does not train in a university setting, but even in this training environment, setting private and instrument certification normally takes are 120 to 130 hours.

In the fall of 2005, MTSU took a group of private pilots and placed them in the its instrument-rating course using in the glass cockpit Diamond DA-40 aircraft. This group of students is being taught based upon the traditional maneuvers-based



Embry-Riddle photo

training method. With data gathered from this research group's training, we should be able to determine if the training results obtained from the first two training studies were due to the FITS method of training or due the use of to the aircraft/glass cockpit/FTD. Data collection and analysis continues.

We are also getting other data. Pilots who have gone through the Cessna Factory Transition course and the Cirrus Factory Transition course have been given surveys to complete concerning their training. The data from these surveys are is being evaluated to make FITS better for the pilot in training. Again, this is a specific population. They are normally pilots purchasing a new aircraft or flight instructors who work for a pilot training school that is purchasing a new aircraft. To try and get a broader pilot population, we have implemented a new on-line FITS survey. To use the on-line survey, Accepted FITS Flight Syllabus and Accepted FITS Syllabus (no flight) training providers can add the names of their instructors to the FITS log-in survey database. This is done by training providers logging in and adding users. Instructors will then need to provide their students with their username and password. The URL of the survey is <http://fits.aero.und.edu/index.php>.

Students may review the survey data by logging into <http://fits.aero.und.edu/Homepage.php>. They will need to use the username "fits" and password "data" or use the username and password they were given to complete the survey. If the student completed the paper version of the survey, the student will need to obtain the username and password from their instructor or use "fits" and "data." Training providers need to ensure that the instructor has been added to the user list and assigned a username and password before offering it to the student.

Training providers may review the data by logging into <http://fits.aero.und.edu/Admin.php>. Training providers that If you do not have a username and a password should contact Dr. Charles Robertson at <robertso@aero.und.edu>.

Most FITS course acceptance is now being transitioned to the local Flight Standard District Offices (FSDOs). At the time of this writing, we have completed the FAA inspector training, but written guidance has not been incorporated into the inspector handbook. By the time you read this, inspector guidance should be in the final steps of being published. Once published, FSDOs can begin processing requests for FITS acceptance from part 61 and 141 pilot schools and part 142 training centers. Acceptance of FITS acceptance of training from original equipment manufacturers (i.e., Adam, Cessna, Cirrus, Garmin) and from nationally distributed training developers (i.e. ASA, King School, Sporty's, Jeppesen) will still be done by the FITS Program Manager in FAA Headquarters, Washington, DC.

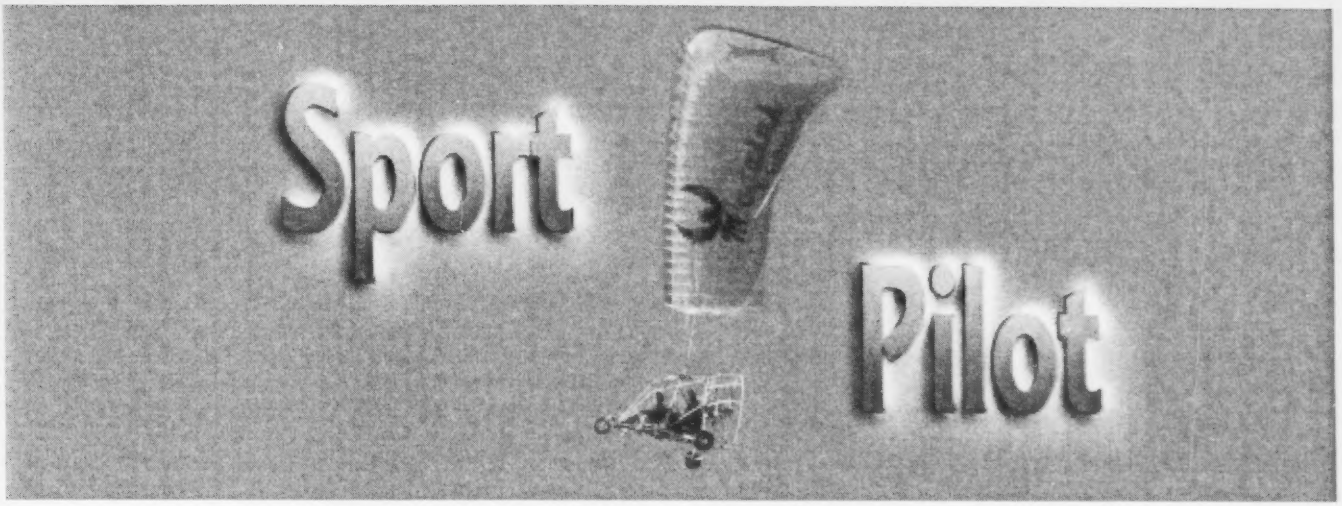
We have gotten comments from some instructors and course developers supporting FITS, but they are still unsure how to do FITS. We have been working on that in two ways. First, there are three new documents on the FITS Web site: a *Course Developer's Guide*, an *Instructor's Training Module*, and an *Inspector's Training Module*. Second, the FITS team has been conducting a FITS Instructor Seminars around the country. This free, all-day seminar is developing into a "how to" FITS training course. We have put on four WINGS-approved seminars already. The first was in Frederick, Maryland, sponsored by the Aircraft Owners and Pilots Association (AOPA) and Avemco Insurance; the second was in Denver, Colorado,, sponsored by Adam, Jeppesen, and the National Association of Flight Instructors; the third was in Daytona Beach, Florida,, sponsored by Embry-Riddle Aeronautical University; and the latest fourth was in Wichita, Kansas, sponsored by Cessna. We have the funding to do at least one more. It is tentatively scheduled for April 22, 2006, in Duluth, Minnesota, sponsored by Cirrus and the University of North Dakota. We are working on funding to do at least five more seminars in the next year, including one at Airventure® in Oshkosh, Wisconsin. Although these seminars are oriented towards flight instructors, anyone interested in FITS is all are welcome to attend.

If you live in these areas where the courses have been held, and have not heard about these seminars, it means you have not registered on <www.faasafety.gov> to receive FAA safety information. I encourage all pilots to register for the free information. (yes, it is free). You should automatically receive e-mails of all safety seminars in your area. If you are not registered, you can search for seminars in your area by going to <www.faasafety.gov>, click on the SPANS link at the center of the page and search by place (Zip Code, state, or airport) or subject (Keywords).

Finally, we are refining the generic FITS syllabi. To get them developed in the limited amount of time we had, different organizations developed them. Although all of the basic information was correct, there were some minor inconsistencies between them, and the formatting was not very good. The formatting and inconsistencies have been fixed. Also, new and training information has been incorporated. Most of these refinements were made from comments we received from industry. As more information comes in and lessons are learned, we will continue to refine all FITS documents and syllabi.

Well, there you have it. FITS continues to gain acceptance. Professional educators know that the tenets of FITS are a better way to teach pilots. But there is still a long way to go before the FITS tenets become just the way of doing business, and not something new. I encourage everyone to read through the FITS documents and provide me with your comments. My e-mail address is <tom.glista@faa.gov>.

Tom Glista is an Aviation Safety Inspector in Flight Standards' General Aviation and Commercial Division and is the FITS Program Manager.



Breaking the Code

by Edsel W. Ford, Jr.

When does a group of parts or a machine that looks like an aircraft really become an aircraft? Is it when the last rivet is driven? No. Is it when the last piece of masking tape is removed? no. Then it has to be when it is issued an airworthiness certificate—that has to be when it becomes an aircraft. No again. So, when does it become an aircraft?

The machine becomes an aircraft at the time of registration with the Federal Aviation Administration's (FAA) Registration Branch, AFS-750, in Oklahoma City. AFS-750 will assign a registration number (N-number) and a manufacturer's code. Now the FAA recognizes the machine as an aircraft no matter how complete. This is when it becomes an aircraft.

The Registry receives paper work from the builder of the aircraft and assigns a manufacturer's code and issues an N-number. Before light-sport aircraft the registration process was simpler. An aircraft owner generally had a type certificated aircraft or an amateur-built aircraft and the manufacturer's code pretty much stayed in the background. Now the FAA has added light-sport aircraft and increased the possibilities of how registration and certification can be accomplished. This process of registration has normally been transparent to an FAA aviation safety inspector or designated airworthiness representative (DAR) who will issue the certificate of airworthiness. However, FAA inspectors and DARs now need to look to this code to determine the type of airworthiness an aircraft can receive.

When the Registry assigns an N-number and enters the manufacturer's descriptive code into its computer system, this is the first step in the FAA's ability to track and identify that individual aircraft, issue safety information, complete reports, and answer questions. For example, you have a safety bulletin that needs to be sent to the owners of light-sport powered parachutes. How do you accomplish this? The process starts by researching the Registry database for certain codes assigned to each affected aircraft.

This code started with the first step in the registration process, when the builder or owner submitted an Application for Registration (FAA Form 8050-1) and the affidavit of ownership. Here is how it works.

A new aircraft builder or owner submits to the Registry an Application for Registration (FAA Form 8050-1) and either an Affidavit of Ownership for Experimental Aircraft, Including Amateur-Built Aircraft and Other Non-Type Certificated Aircraft (FAA Form 8050-88) or an Affidavit Of Ownership for Experimental or Special Light-Sport Aircraft (FAA Form 8050-88A). The process of coding the aircraft starts with the information provided on these forms. The FAA Form 8050-88 submitted to the registry will have assigned to it a manufacturer's code beginning with the numbers 056. The remaining numbers in the code will further identify the aircraft, but we are only going to look at the first three numbers in the code. If the FAA Form 8050-88A with the second option checked is submitted, the aircraft will be assigned a manufacturer's code beginning with 059. This indicates an experimental light-sport aircraft (ELSA) code. If the first option is checked, a code beginning 060 for special light-sport aircraft (SLSA) code is assigned. The owner makes the determination on whether the aircraft is going to be either amateur-built or light-sport special or light-sport experimental when choosing which affidavit form to use and marking the options on the form. The owner may not know the importance of the choices, but by making

Excerpt from FAA Form 8130-6

II. CERTIFICATION REQUESTED

IMPORT

APPLICATION IS HEREBY MADE FOR: *(Check applicable items)*

A	1		STANDARD AIRWORTHINESS CERTIFICATE *(Indicate Category)*		NORMAL		UTILITY		ACROBATIC		TRANSPORT		COMMUTER		BALLOON		OTHER								
B			SPECIAL AIRWORTHINESS CERTIFICATE *(Check appropriate items)*																						
	7		PRIMARY																						
	9		LIGHT-SPORT *(Indicate Class)*		AIRPLANE		POWER-PARACHUTE		WEIGHT-SHIFT-CONTROL		GLIDER		LIGHTER THAN AIR												
	2		LIMITED																						
	5		PROVISIONAL *(Indicate Class)*	1		CLASS I																			
				2		CLASS II																			
	3		RESTRICTED *(Indicate operation(s) to be conducted)*	1		AGRICULTURE AND PEST CONTROL				2		AERIAL SURVEY				3		AERIAL ADVERTISING							
				4		FOREST *(Wildlife Conservation)*				5		PATROLLING				6		WEATHER CONTROL							
				0		OTHER *(Specify)*																			
	4		EXPERIMENTAL *(Indicate operation(s) to be conducted)*	1		RESEARCH AND DEVELOPMENT				2		AMATEUR BUILT				3		EXHIBITION							
				4		AIR RACING				5		CREW TRAINING				6		MARKET SURVEY							
				0		TO SHOW COMPLIANCE WITH THE CFR				7		OPERATING *(Primary Category)* KIT BUILT AIRCRAFT													
				8		OPERATING LIGHT-SPORT	8A		Existing Aircraft without an airworthiness certificate & do not meet § 103.1																
							8B		Operating Light-Sport Kit-Built																
							8C		Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190																
	8		SPECIAL FLIGHT PERMIT *(Indicate operation(s) to be conducted, then complete Section VI or VII as applicable on reverse side)*	1		FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE																				
				2		EVACUATION FROM AREA OF IMPENDING DANGER																				
				3		OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT																				
				4		DELIVERING OR EXPORTING				5		PRODUCTION FLIGHT TESTING													
				6		CUSTOMER DEMONSTRATION FLIGHTS																				
C	6		MULTIPLE AIRWORTHINESS CERTIFICATE *(check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)*																						

the choices the owner made the determination on what airworthiness certificate the aircraft will be able to receive.

The information submitted on the Application for Airworthiness (FAA Form 8130-6) only further defines the code. It does not determine if the aircraft is an amateur-built or a light-sport. Most inspectors and DARs think that the 8130-6 is the assignment of the classification of amateur-built or light-sport, but that is not correct. It was done with the submission of Form 8050-88 or 8050-88A as previously mentioned. In fact, this is only where the coding for the aircraft is further defined.

To further define the aircraft, look at section II, "Certification Requested" on Form 8130-6. This is where the aircraft will receive another part of the code. The first block that has to be checked for amateur-built or light-sport aircraft is B, special airworthiness certificate. If you then check box 4, "experimental," and sub-box 8, "operating light sport," and sub-box 8A, "existing aircraft without an airworthiness certificate and does not meet 14 CFR section 103.1;" this aircraft would get an airworthiness code of 48A. This airworthiness code can only exist in manufacturer's code 059, experimental light-sport, so this means FAA Form 8050-88A's second option is checked. What if I checked box 9, "light-sport," and then checked "airplane?" It would have an airworthiness code of 9A. This would mean that I need the first option of FAA Form 8050-88A checked to receive manufacturer's code 060. The experimental amateur-built would have block 4 and sub-block 2 checked for an airworthiness code of 42 and this could only exist on an FAA Form 8050-88 and a manufacturer's code of 056.

What does all this mean to the inspector or DAR performing a certification of an aircraft? It means that each needs to look at the registration documentation to determine what blocks can be checked on the 8130-6. We need to set some rules. Use Form 8050-88 and the options would be limited to block 4, experimental, sub-block 2, amateur-built. Use Form 8050-88A with the second option checked and the blocks would be limited to 4, experimental, and sub-block 8, operating light-sport, then you have two choices either 8a, "existing fleet," or 8b, "kit built." Since the kit standards have not been completed at this time, option 8b is not available. Let us look at a Form 8050-88A with the first option checked. This is the most complex. However, this can only be accomplished by a manufacturer of a light-sport aircraft. The manufacturer would check block 9, light-sport, then check the class of aircraft. However, in the case of a manufacturer operating a light-sport aircraft for research and development or some of the other variations in the sub-block under experimental, the aircraft would be registered using the 8050-88A with the first option checked. It would have a manufacturer's code of 060, but an airworthiness code of 41, research and development, 43, exhibition, or 46, market survey but never 42 amateur-built.

With all this in mind the inspector or DAR should start the certification work by researching which affidavit was used. This will tell the inspector or DAR if the certification requested can be accomplished. If the applicant says at the last minute, "I want this aircraft to be an ELSA instead of an amateur-built," and the applicant had submitted an 8050-88, the inspector or DAR can have the applicant contact the Registry for instructions to set aside the initial affidavit and submit an 8050-88A to amend the registration record. The applicant should have submitted FAA Form 8050-88A with second option checked. This way the code will be correct, and the FAA can better serve the public and promote safety.

For more information on aircraft registration, see the FAA Aircraft Registry Web site at <http://www.faa.gov/aircraft/air_cert/aircraft_registry/>.

Edsel Ford is an Aviation Safety Inspector Airworthiness in Flight Standards' Light-sport Aviation Branch, AFS-610.

What to Do for a Flight Review

by Susan Parson

You have probably seen it, or perhaps even experienced it yourself: pilot and certificated flight instructor (CFI) check the clock, spend exactly one hour reviewing Title14 Code of Federal Regulations (14 CFR) Part 91 operating rules, and then head out for a quick pass through the basic maneuvers generally known as "air work." The pilot departs with a fresh flight review endorsement and, on the basis of the minimum two hours required in 14 CFR section 61.56, can legally operate for the next two years. This kind of flight review may be adequate for some pilots, but for others—especially those who do not fly on a regular basis—it is not.

To serve the aviation safety purpose for which it was intended the flight review must be far more than an exercise in watching the clock and checking the box. Advisory Circular (AC) 61-98A states that the flight review is "an instructional service designed to assess a pilot's knowledge and skills." The regulations are even more specific: Title14 CFR section 61.56 states that the person giving the flight review has the discretion to determine the maneuvers and procedures necessary for the pilot to demonstrate "safe exercise of the privileges of the pilot certificate." It is thus a proficiency-based exercise, and it is up to the instructional service provider—the CFI—to determine how much time and what type of instruction is required to ensure that the pilot has the necessary knowledge and skills for safe operation.

The flight review is also intended as an opportunity for pilots to design a personal currency and proficiency program in consultation with a CFI. In effect, then, the flight review is the aeronautical equivalent of a regular medical checkup and ongoing health improvement program. Like a physical exam, a flight review may have certain "standard" features (e.g., review of specific regulations and maneuvers). However, just as the physician should tailor the exam and follow-up to the individual's characteristics and needs, the pilot and CFI should work together to tailor both the flight review and any follow-up training plan to the individual pilot's skill, experience, aircraft, and personal flying goals.

To better accomplish these objectives, the FAA has developed two new tools for enhancing the flight review. The first is a new flight review guidance for flight instructors, which can be found at <www.faa.gov/pilots/training/media/flight_review.pdf>. Intended for use in conjunction with AC 61-98A, the guide to *Conducting an Effective Flight Review* offers ideas for structuring the flight review. It also includes tools instructors can use to help pilots develop a personalized "aeronautical health maintenance and improvement" program and establish realistic personal weather minimums.

Second, the FAA has developed a flight review preparation tool for general aviation pilots. Specifically, the Online Courses section of the Aviation Learning Center at <www.faasafety.gov/ALC/> now includes a flight review preparation course that guides pilots through a practical, real-world oriented review of the regulations and advisory material. Completing this review with a passing score on the exam, which is built around mini-scenarios, will partially satisfy the flight review requirement of 14 CFR section 61.56 (a) (1) for a review of part 91 operating rules. Pilots who use this course to prepare can then use ground time more efficiently for discussion of decision-making, personal minimums, and flying goals.

Here are some of the ideas you will see in the guide to *Conducting an Effective Flight Review.*

Preparation and Ground Review

First, bear in mind that the times specified in the regulations—one hour of ground review and one hour of flight training—are intended as a floor, not a ceiling. If you are a flight instructor, managing pilot expectations is key to ensuring that you don't later feel pressured to conduct a "minimum time" flight review for someone whose aeronautical skills are rusty. When a pilot schedules a flight review, find out not only about total time, but also about type of flying (e.g., local leisure flying or cross-country flying for personal transportation) and recent flight experience. You also need to know if the pilot wants to combine the flight review with a new endorsement or aircraft checkout.

If you are a pilot in need of a flight review, remember that how much time is "enough" will vary from pilot to pilot. Someone who flies the same airplane 200 hours every year may not need as much time as someone who has logged only 20 hours since the last flight review or a pilot seeking a new endorsement in conjunction with the flight review. For pilots who have not flown at all for several years, a useful "rule of thumb" is to plan one hour of ground training and one hour of flight training for every year the pilot has been out of the cockpit.

Second, a little bit of preparation goes a long way toward making the flight review an interesting, meaningful, and effective learning experience. If you are an instructor, ask the pilot to complete the online Flight Review Preparation Course found at <www.faasafety.gov> in advance of your session and bring a copy of the completion certificate to the flight review. If you are the pilot, take the

course even if your instructor doesn't assign it. The course gives you plenty of time to review material at your own pace and focus on areas of particular interest.

A cross-country flight plan is another useful flight review preparation activity. Many people learn to fly for personal transportation, but the cross-country flight planning skills learned for practical test purposes can become rusty if they are not used on a regular basis. Structuring the flight review as a short cross-country (i.e., 30-50 miles from the home airport) is an excellent way to refresh flight-planning skills. Be sure to include consideration of runway lengths, weather, expected aircraft performance, alternatives, length of runways to be used, traffic delays, fuel requirements, terrain avoidance strategies, weight and balance, and NOTAM/TFR information. The new GA *Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision-Making,* which can be found at <www.faa. gov /pilots/safety/media/ga_weather_decision_making.pdf> may help in this part of the exercise.

If you are the flight instructor, it is within your discretion to ask for a "manual" flight plan created with a sectional chart, plotter, and E6B. In real-world flying, however, many pilots today use online flight planning software for basic information and calculations. Appropriate use of these tools can enhance safety in several ways: they provide precise course and heading information; the convenience may encourage more consistent use of a flight plan; and automating manual calculations leaves more time to consider weather, performance, terrain, alternatives, and other aspects of the flight. Encouraging the pilot to use his or her preferred online tool will give you a more realistic picture of real-world behavior, and the computer-generated plan will give you an excellent opportunity to point out both the advantages and the potential pitfalls of this method. A critical point to emphasize is that automated flight planning tools can be enormously helpful, but the pilot must always review the information with a critical eye, frequently supplement the computer's plan with additional information, and never simply assume that the computer-generated package "must be okay" because the machine is smarter. Asking these kinds of questions is also key to critical thinking, which is in turn the secret to good aeronautical decision-making (ADM) and risk management.

Aviation security is another important topic for the ground portion of the flight review. In the post-September 11 security environment, any security incident involving general aviation pilots, aircraft, and airports can prompt calls for new restrictions. Pilots and instructors share a special responsibility to avoid such incidents by knowing and following basic security procedures at all times. These include not only respect for temporary flight restrictions (TFRs), but also for the importance of securing your aircraft against unauthorized use. Pilots should never leave the aircraft unlocked or, worse, unattended with the keys inside.

Flight Activities

The aerial portion of many flight reviews consists almost exclusively of air work followed by multiple takeoffs and landings. It is true that these maneuvers can give the instructor a very good snapshot of the pilot's basic aircraft control skills. They are also good for the pilot, who gets a safe opportunity to practice proficiency maneuvers that he or she may not have performed since the last flight review. Air work alone, however, will not necessarily demonstrate the pilot's knowledge of avionics and other aircraft systems, and it will show even less about the pilot's ability to make safe and appropriate decisions in real-world flying.

Flying at least part of the cross-country trip assigned and discussed in the ground review is a good way to pull it all together. For example, one leg could involve flying from departure to destination, during which the pilot encounters scenarios that challenge the pilot's systems knowledge and decision-making skills, including risk management. The other leg can focus on air work maneuvers. Throughout the session, the instructor should be watching for:

- *Basic Skills:* Does the pilot maintain control of the aircraft when faced with a major distraction? For a satisfactory flight review, the pilot should be able to perform all maneuvers in accordance with the *Practical Test Standards* (PTS) for the pilot certificate that he or she holds.

- *Systems Knowledge:* Does the pilot demonstrate knowledge and proficiency in using avionics, aircraft systems, and "bring-your-own-panel" handheld devices? Appropriate and proficient use of the autopilot is another skill to evaluate in this exercise.

- *Aeronautical Decision-Making (ADM) Skills:* A good flight review should give the pilot multiple opportunities to make decisions. If there is a diversion, what criteria should be used to select an alternate airport? What are the possible hazards, and what can the pilot do to mitigate them? Does the pilot perform regular "common sense cross-checks" of what the GPS and the autopilot are doing?

Post-Flight Discussion

Most of us are very familiar with the traditional "sage on the stage" model of training, in which the instructor does all the talking and hands out grades with little or no learner input. There is a place for this kind of debriefing; however, a collaborative critique is a more effective way to demonstrate the self-awareness and judgment needed for sound aeronautical decision-making. If you are a flight instructor, try using the four "Rs" to structure a collaborative

post flight critique:

- *Replay:* First, the pilot should verbally replay the flight. This approach gives the pilot a chance to validate his or her own perceptions, and it gives the instructor critical insight into his or her judgment abilities.

- *Reconstruct:* This step encourages the pilot to learn by identifying key things that he or she would have, could have, or should have done differently.

- *Reflect:* Insights come from investing perceptions and experiences with meaning, which in turn requires reflection on these events. For example, what was the most important lesson from this activity?

- *Redirect:* The final step is to relate lessons learned in this flight to other experiences. For example, what parts of today's lesson could apply to a future flight, and how?

If the pilot did not perform well enough for satisfactory completion of the flight review, the PTS is the objective standard to discuss areas needing improvement, as well as a practical course of action to move forward. Even if the pilot's performance is satisfactory, though, there is value in discussing a personalized aeronautical health maintenance and improvement plan. To assist in this exercise, the guide to *Conducting an Effective Flight Review* includes worksheets to help develop:

- *Personal Minimums:* Safe pilots understand the difference between what is "legal" in terms of the regulations, and what is "smart" in terms of pilot experience and proficiency. Use the worksheets to establish realistic and appropriate personal weather minimums.

- *Personal Proficiency Practice Plan:* Flying just for fun is one of the most wonderful benefits of being a pilot, but many pilots appreciate help in developing a plan for maintaining and improving basic aeronautical skills.

- Training Plan: Many pilots have aeronautical goals. For example, the pilot's goal might be lower personal minimums, completion of another phase in the FAA's Pilot Proficiency ("Wings") Program, or obtaining a new endorsement.

The flight review is vital link in the general aviation safety chain. Whether you are giving or receiving the flight review, your approach to this exercise can play a critical role in ensuring that it is a meaningful and effective tool for maintaining and enhancing GA safety.

Finally, the guide is intended to be a living document that incorporates comments, suggestions, and ideas for best practices from GA instructors and pilots like you. Please direct comments and ideas for future versions to: <susan.parson@faa.gov>. Happy flying!

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CFI's
Flight Review Checklist

Step 1: Pre-Flight Review Actions

- ❑ Scheduling
- ❑ Pilot's Aeronautical History
- ❑ Part 91 Review Assignment
- ❑ Cross-Country Flight Plan Assignment

Step 2: Ground Discussion

- ❑ Regulatory Review
- ❑ Cross-Country Flight Plan Review
- ❑ Risk Management & Personal Minimums

Step 3: Conducting the Flight

- ❑ Physical Airplane (basic skills)
- ❑ Mental Airplane (systems knowledge)
- ❑ Aeronautical Decision-Making

Step 4: Postflight Discussion

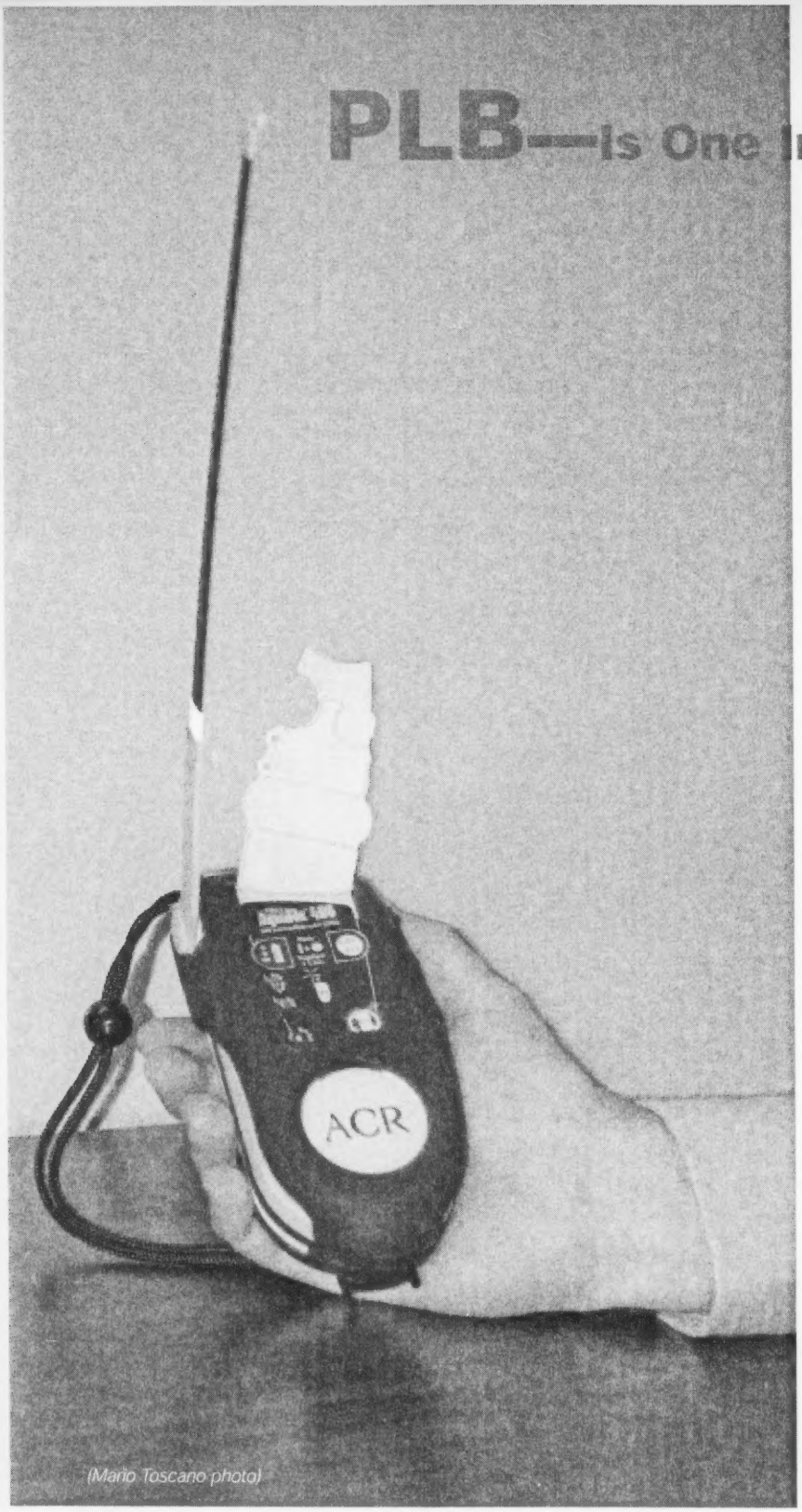
- ❑ Replay, Reflect, Reconstruct, Redirect
- ❑ Questions

Step 5: Aeronautical Health Maintenance & Improvement Plan

- ❑ Personal Minimums Checklist
- ❑ Personal Proficiency Practice Plan
- ❑ Training Plan (if desired)
- ❑ Resources List

PLB—Is One In Your Future?

story by H. Dean Chamberlain



(Mario Toscano photo)

As a self-proclaimed survivalist, the title gives me a great excuse to buy unique outdoor-type equipment, I treated myself to a new piece of survival gear on December 31. The date was important because it allowed me to qualify for a $50 discount on my brand new, never out of the box, personal locator beacon (PLB). For those who may not follow the latest trends in locator beacons, a PLB is like the new kid on the beacon block. Using technology similar to the familiar emergency locator transmitter (ELT) in aircraft or an emergency position-indicating radio beacon (EPIRB) for boats, the new beacon family member of smaller and lighter PLBs was approved for use in the United States several years ago by the Federal Communications Commission (FCC). Using the same 406 MHz technology as its older siblings, a PLB, when activated, transmits a coded 406 MHz signal to one of the overhead Cospas/Sarsat satellite receivers. Once a distress signal is received by one of the satellite receivers, a signal is down linked to one of the ground-based receivers located around the world. In the United States that information in processed by the National Oceanic and Atmospheric Administration (NOAA) Mission Control Center (USMCC) located just outside of Washington, DC, in Maryland. The USMCC then coordinates the information with the appropriate search and rescue (SAR) organization. In the United States, the U.S. Coast Guard is responsible for maritime SAR operations. The U.S. Air Force has responsibility for inland aviation-related SAR. Because of the unique nature of PLBs, which are designed primarily for hikers and similar types of outdoor activities, a U.S. PLB distress signal is forwarded by the USMCC to the U.S. Air Force, which coordinates with the appropriate state rescue organization.

So, you are asking yourself what does a PLB designed for such outdoor activities as hiking have to do with aviation? Well, maybe nothing. Then again, it could be important. If that is not a professional wishy-washy Washingtonian answer, I don't know what is. But, then what kind of answer can you expect from a self-proclaimed outdoor gear geek who flies a *Tripacer*. Please let me explain. First, a PLB cannot replace an ELT. Period. Only an FAA-approved ELT meets the regulatory requirement of Title 14 Code of Federal Regulations section 91.207, Emergency locator transmitters. So, having said that, why am I excited about my new PLB?

I play and fly around water all the time. But my aircraft's ELT only transmits on 121.5 MHz. As we have reported in the past, the Cospas/Sarsat system is terminating its ability to receive 121.5 MHz signals in February 2009. After that date, the satellite receivers will only be able to receive 406 MHz distress signals. What that means is every 121.5 MHz ELT will only be able to be received by a nearby receiver capable of receiving 121.5 MHz or an over-flying aircraft monitoring 121.5 MHz. Then someone has to notify an appropriate air traffic facility. Any pilot who wants satellite reception coverage will have to upgrade to a 406 MHz ELT. Like many pilots, I am waiting for the price of current 406 MHz ELTs to come down. My current 121.5 MHz ELT cost less than $200. Will 406 MHz ELTs ever come down in price to that level? I don't know, but I am hoping. But I still want the significant safety benefits that a 406 MHz ELT provides users. So what can I do short of buying a 406 MHz ELT? What if the aircraft I fly doesn't have an ELT?

ELT EXCEPTIONS

I fly more than one type of aircraft. I especially like to fly gliders. But to the best of my knowledge, none of the gliders I have flown have had an ELT onboard. No, I have not been violating the ELT carriage requirement. Gliders are not required to carry an ELT by regulation. ELTs are for airplanes. The ELT regulation even lists a number of conditions or flight operations that do not require an ELT onboard for airplanes. But the fact remains, if you have an accident in one of the exempted flight operations, it would be nice if you have some way to call for help. A cell-phone is one such means of calling for help if you are both able and within range of a cell-phone tower. A satellite-based telephone, if you can use it, would be even better in remote areas. But the best way in aviation to call for help is with an ELT. For those who may disagree, the following is a brief discussion about why an ELT is the best means of calling for help. An ELT is designed to activate upon a specific amount of impact force measured in equivalent levels or units of "gravity" expressed in "Gs." The ELT "G" switch is designed to function once a specified number of "Gs" is "felt" by the aircraft and its rigidly mounted ELT. As a crash-activated, self-contained, battery operated distress-signaling device, an ELT system (transmitter, switch, monitor, cable, and antenna) that survives the crash (not all do) will automatically activate with no pilot input. This self-activation, self-contained aspect is important in aviation because a pilot may become incapacitated because of the crash forces involved in an accident. But what can you do when you don't have an ELT installed in your aircraft? How can you get the benefits of a satellite-base alerting system that is monitored 24 hours a day, every day without having an ELT?

WELCOME PLB

Since there are no non-mounted ELTs approved for aircraft use (yes, there are some portable ELTs, but they must be mounted in a rigidly attached mounting bracket to the airplane, and I am not including special manually activated emergency ELTs designed for life-raft use), I decided to buy a PLB. Remember, a PLB is not an ELT. For one thing, PLBs have only a 24-hour transmitting requirement. However, my PLB is relatively lightweight, relatively small, I wish it were smaller. It floats, it transmits on 406 MHz, and, most importantly, it has a built-in GPS receiver to determine latitude and longitude information (Lat-Long). The GPS Lat-Long information is then sent along with the unit's unique identification code to the satellites for relaying to an appropriate MCC. Not all PLBs have built-in GPS. Some units have no GPS capability. Others allow you to download GPS data from an external source.

The negative side of the equation for a PLB is the PLB is not automatically activated. In fact, it requires a very conscious activation procedure to reduce inadvertent activation. My model PLB's blade antenna must be released and unwrapped from around the body of the unit. The antenna must be properly positioned and, if possible, kept out of any water. The front cover of the unit must be raised to gain access to the activation keypads. The final step requires that two keypads be pressed simultaneously for at least one second to activate the unit. If you want to ensure the onboard GPS functions properly, the built-in GPS antenna must be correctly orientated to the sky for a clear line of sight to the GPS satellites in orbit, which among other satellites, carry the Cospas/Sarsat receivers. The process is deliberate. If you are injured in an accident and cannot reach or properly position and active your PLB, it is just an expensive paperweight.

Unless your non-ELT equipped aircraft or canoe or kayak or all-terrain vehicle or hi-tech hiking shoes has one of the automotive-style onboard calling systems that activates upon deployment of your "airbag system," I think a PLB is a good device to have within reach. Is it the ideal system? It depends upon what you are doing. If you are hiking alone and suffer a life-threatening fall, the PLB may be your last chance of rescue. If you are flying across the Pacific Ocean in your single-engine family flyer, I think a separate PLB attached to each person onboard is a good way to go into the

water if you lose your engine and have to ditch at sea. I would also want a good quality EPIRB with me in the water or in my life raft.

Why an EPIRB? PLBs don't have the same transmitting endurance of ELTs and EPIRBs. Plus, my PLB's operating instructions say to keep it out the water, if possible. EPIRB's are designed to operate in water, and ELTs tend to sink with their ditched aircraft. Although PLBs require specific activation, some EPIRBs are water activated while other EPIRBs are manually activated. A water-activated EPRIB requires one less step when you are about to ditch. At the very least, you just throw it out of the aircraft as you exit with hopefully some type of survival kit. A quick survival safety note: Remember, never inflate an inflatable personal flotation device (PFD) inside an aircraft, nor wear any type of non-inflatable PFD inside an aircraft. The buoyancy of an inflated PFD or of a non-inflatable PFD could trap you inside the aircraft and prevent your escape. You need to wait until you are clear of the aircraft interior before inflating your PFD. You also don't want to puncture your inflatable PFD while climbing out of the aircraft. It pays to be careful and prepared.

PBLs ARE MULTIPURPOSE

The good news about a PLB is that it can serve many purposes. It can be carried in any type aircraft as a back up to an ELT. In aircraft not required to have an ELT, it can serve as your primary manually operated satellite-based distress beacon. It can be carried on your person to provide you a means to call for help and rescue when you are beyond range of your cell phone. As the device of last means, my PLB instructions say it is to be used only in case of loss of life, eyesight, or significant loss of property—a PLB is not something to be used to call for a pizza to be delivered. But as one of the newest survival tools to take along on your next adventure in the air, on land, or sea, it has its place. But, like any tool, it is only as good as the person using it. The key to any type of survival is the skill and knowledge of the person using it. A PLB, like any type of electronic battery-operated device, can fail. Also, aviation has it own unique accident risks. An aircraft crash can subject such devices, which are not designed to aviation standards, to very high "G" loadings that may damage such devices beyond their means to function. Boats normally sink. Aircraft crash.

But like the 10 essential items that many experts suggest should be carried on every person going out of sight of the nearest boutique coffee shop, a PLB might just be considered item number 11. Just remember to properly register your PLB or 406 ELT with NOAA, as outlined in your equipment instructions.

For more information about PLBs, ELTs, EPIRBs, the Cospas/Sarsat system, NOAA's USMCC, and the role the major agencies involved in search and rescue in the United States play in search and rescue operations, you can check the NOAA's Internet Web site at <http://www.sarsat.noaa.gov/>. The Web site explains every aspect of the satellite-based search and rescue system. To register your 406 MHz unit with NOAA, you can do it on line at the NOAA site.

The FCC's Web site is <www.fcc.gov>. The applicable FCC regulation for PLBs is Title 47 Code of Federal Regulations, part 95, Personal Radio Services, subpart K, Personal Locator Beacons (PLB). Section 95.1400, Basis and purpose, explains in part, "The rules in this subpart are intended to provide individuals in remote areas a means to alert others of an emergency situation and to aid search and rescue personnel locate those in distress." The FCC rules mandates that 406 MHz PLB owners register their PLB with NOAA and that the information be kept up-to-date. Section 95.1402, Special requirements for 406 MHz PLBs says in part, "Owners shall advise NOAA in writing upon change of PLB ownership, or any other change in registration information. NOAA will provide registrants with proof of registration and change of registration postcards."

The final comment about PLBs is that section 95.1402 requires that the 121.5 MHz homing signal in the 406 MHz PLB transmit a unique identifier code to identify the signal as a PLB. That identifier code is the Morse code "P." So if you hear "dit-dah-dah-dit" when listening to 121.5 MHz, you have just received a PLB distress alert. As with an ELT distress alert, you should contact the nearest air traffic facility after noting the time and your position and altitude when the signal was first heard, last heard, and position at maximum signal strength. If you have homing capability, you should try to determine the signal's bearing from your position either based upon your GPS position or in relation to a navigational aid.

Now the self-proclaimed survivalist in me is wondering just how much a satellite telephone costs?

FAA's Safety Hotline 1-800-255-1111

FAA's Safety Hotline operates Monday through Friday (except holidays) from 8 am to 4 pm ET. It provides a nationwide, toll-free telephone service, intended primarily for those in the aviation community having specific knowledge of alleged violations of the federal aviation regulations. Callers' identities are held in confidence and protected from disclosure under the provisions of the Freedom of Information Act.

ELT Update—Limit your 406 MHz Testing Time

story and photo by H. Dean Chamberlain

FAA regulations, Title 14 Code of Federal Regulations section 91.207(d)(4), requires that an aircraft emergency locator transmitter (ELT) be tested annually for "the presence of a sufficient signal radiated from its antenna." The *Aeronautical Information Manual* (AIM) in Chapter 6, Section 6-2-5, discusses ELTs, their use, and how to test them. To paraphrase a statement from a movie about a failed trip to the Moon, "Folks, we have a problem." The FAA requires an ELT radiated test, but if the test is not done properly, the Federal Communications Commission (FCC) might take enforcement action against the person doing a 406 MHz ELT test.

Here is the problem. When the FAA test requirements were written, the basic ELT was an analog 121.5 MHz unit transmitting in the aeronautical frequency band. If the ELT being tested could not be isolated within an approved radio frequency shielded room or container, which keeps the signal from going beyond the room or container, a radiated test could be done within the first five minutes after the hour. The test requirements listed the number of recommended sweeps of the signal to minimize the risk of anyone thinking the test signal was an actual distress alert. The person doing the test would quickly activate the ELT, listen for its distinctive sound on a nearby aeronautical band aircraft radio or handheld transceiver and then turn off the ELT.

This test method met the FAA requirement and most organizations were okay with the idea. That was until the newer 406 MHz ELT distress beacon was developed. Part of the problem is that instead of being in the aeronautical band, 406 MHz is a protected international distress frequency. Plus, with a properly registered 406 MHz ELT, the transmitted signal includes a digital code that can be used to identify the owner. As a result, the FCC can track down anyone who, in its opinion, transmits a fraudulent or non-emergency distress signal, e.g. an FAA test.

Since most 406 MHz ELTs include a low-powered 121.5 MHz homing transmitter, the challenge for the person doing the annual ELT check is how to satisfy the FAA requirement without violating the FCC regulations. Since in most cases the person doing the testing has no way to monitor the 406 MHz emitted coded signal without special equipment and can therefore only listen for the activation of the 121.5 MHz homing signal of the combined 406/121.5 MHz ELT.

Short of a change in the regulation, the following is one means of conducting the test. Remember, the purpose of test is to check the aircraft's installed system from ELT transmitter to its antenna.

Anyone testing any ELT should follow the manufacturer's recommended procedures. If those procedures are not available and cannot be found, the following is one procedure that has been coordinated with the National Oceanic and Atmospheric Administration (NOAA) which operates the United States portion of the international satellite-based search and rescue system that monitors and processes distress beacon alerts.

Owners of 406 MHz ELTs should limit any test to less than 30 seconds. This will preclude the satellites from receiving a signal from the 406 MHz beacon when activated to the "ON" condition or switch position while testing the 121.5 MHz ELT portion of a combined ELT. This will prevent the government from initiating a search and rescue action. There have been numerous reports of unintentional activation of the combined ELTs when periodic maintenance testing of the 121.5 MHz signal is tested to assure proper performance. Activating the "ON" function, which is part of the remote control panel rather than gaining access to the combined ELT and activating the "TEST" function, has led to violations administered from the FCC and causes emergency responders to react in an attempt to locate a downed air-

craft. If the selection to the "ON" position is minimized to 30 seconds or less, there is sufficient time protection to prevent crossing the 50-second time threshold for activating the 406 MHz locator signal. Operators should advise their maintenance personnel of this limitation and possible vulnerability to violations or sanctions.

The following are excerpts from AIM section 6-2-5, Emergency Locator Transmitter (ELT), dealing with testing, false alarms, and reporting.

Testing

1. ELTs should be tested in accordance with the manufacturer's instructions. This should be done, preferably, in a shielded or screened room or specially designed test container to prevent the broadcast of signals, which could trigger a false alert.

2. When this cannot be done, aircraft operational testing is authorized as follows:

(a) Analog 121.5/243 MHz ELTs should only be tested during the first five minutes after any hour. If operational tests must be made outside of this period, they should be coordinated with the nearest FAA Control Tower or Flight Service Station. Tests should be no longer than three audible weeps. If the antenna is removable, a dummy load should be substituted during test procedures.

(b) Digital 406 MHz ELTs should only be tested in accordance with the unit's manufacturer's instructions.

(c) Airborne tests are not authorized.

False Alarms

1. Caution should be exercised to prevent the inadvertent activation of ELTs in the air or while they are being handled on the ground. Accidental or unauthorized activation will generate an emergency signal that cannot be distinguished from the real thing, leading to expensive and frustrating searches. A false ELT signal could also interfere with genuine emergency transmissions and hinder or prevent the timely location of crash sites. Frequent false alarms could also result in complacency and decrease the vigorous reaction that must be attached to all ELT signals.

2. Numerous cases of inadvertent activation have occurred as a result of aerobatics, hard landings, movement by ground crews, and aircraft maintenance. These false alarms can be minimized by monitoring 121.5 MHz and/or 243.0 MHz as follows:

(a) In flight when a receiver is available.

(b) Before engine shut down at the end of each flight.

(c) When the ELT is handled during installation or maintenance.

(d) When maintenance is being performed near the ELT.

(e) When a ground crew moves the aircraft.

(f) If an ELT signal is heard, turn off the aircraft's ELT to determine if it is transmitting. If it has been activated, maintenance might be required before the unit is returned to the "ARMED" position. You should contact the nearest Air Traffic facility and notify it of the inadvertent activation.

Inflight Monitoring and Reporting

1. Pilots are encouraged to monitor 121.5 MHz and/or 243.0 MHz while inflight to assist in identifying possible emergency ELT transmissions. On receiving a signal, report the following information to the nearest air traffic facility:

(a) Your position at the time the signal was first heard.

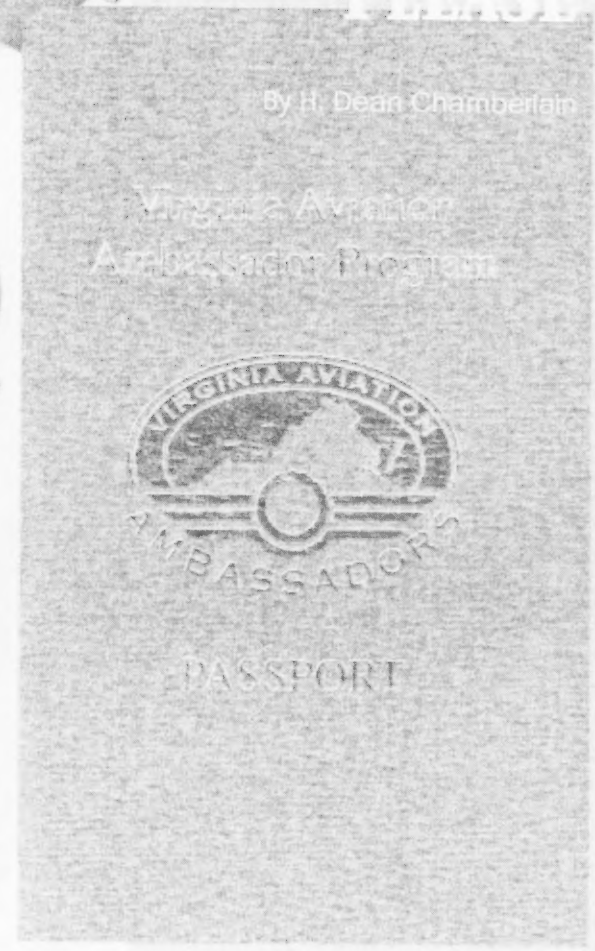
(b) Your position at the time the signal was last heard.

(c) Your position at maximum signal strength.

(d) Your flight altitudes and frequency on which the emergency signal was heard: 121.5 MHz or 243.0 MHz. If possible, positions should be given relative to a navigation aid. If the aircraft has homing equipment, provide the bearing to the emergency signal with each reported position.

MAY I SEE YOUR PASSPORT, PLEASE

By H. Dean Chamberlain



For global air travelers, carrying a passport is second nature. But, having a state passport is unusual. That is unless you are a pilot traveling in the Commonwealth of Virginia. I recently received my official Virginia Aviation Ambassadors Passport. I also received a brochure outlining the rules for the Passport Program. Now that I have

my official passport, I can visit the airports of Virginia. No, it is not Big Brother adding another post 9/11 flight restriction. It is a novel aviation promotional program that I think has great potential.

I discovered the program by accident. While returning from Ohio after the Christmas holiday, I stopped at the Front Royal-Warren County (Virginia) airport near Interstate Route 66 to look at sailplanes. When I went into the airport office, I saw a display promoting the Virginia Aviation Ambassador Program.

Since I knew nothing of the program, which began August 1, 2005, I ask the person working behind the desk about the program. He gave me a brochure that explained the program and my own shirt-pocket size passport. Like visas pages in regular passports, the Virginia Aviation Ambassadors Passport lists the names of all 67 public-use airports in the Commonwealth, plus the names of the other qualifying facilities in the program; all listed in their own named boxes. The Program's goal is to encourage pilots and their passengers to visit each of the listed aviation facilities in Virginia. Those facilities include the named public-use airports, the four listed aviation museums, the space for one safety seminar in Virginia, and a space for the Virginia State EAA Fly-In. Although the official Virginia Aviation Ambassadors Passport must be used and all stamped entries must be made in the appropriate location in the passport, participants need not be a Virginia resident.

What makes the promotion fun, in addition to the challenge of filling in the boxes, is that there are three award levels with designated gifts. If you visit 25 of the listed airports, including at least one from each of the state's seven regions, and complete the museums, safety seminar, and EAA Fly-In requirements; then you can receive the Bronze Level award of a Virginia Aviation Ambassadors Cap and Lapel Pin. Once the Virginia Department of Aviation reviews and awards your Bronze Level rewards, your passport will be returned to you so you can start working toward the Silver and Gold Levels awards.

For visiting 50 airports, including at least one in each of the seven regions, plus meeting the other requirements, participants will receive the Silver Level award of a flight bag. The reward for visiting all 67 Virginia Public-Use Airports, plus meeting all of the other requirements, is the Gold Level award of a leather flight jacket.

The Program's brochure states the goals of the promotion are:

"The program is designed to encourage pilots to fly to all of the airports in Virginia and visit the aviation and transportation museums. We plan to increase awareness of Virginia's aviation system and contribute to the economic development activities of each locality by getting pilots to fly to airports and museums they may not normally visit.

"This program is an extraordinary opportunity for pilots, aviation enthusiasts and the general public to see the valuable assets in our system of airports. It gives pilots and riders alike an opportunity to set and meet goals in their flying and sightseeing while having fun and experiencing what Virginia has to offer. Driving to our airports is also acceptable for our ground bound friends, rainy days, and where airport access may be difficult on the airplane or pilot skills."

I have my first airport stamp, and I have started planning for my next. As the brochure says, for those airports listed that don't have published FBO operating hours, participants should call the airport to ensure that someone will be available to stamp the passport.

The Internet Web site for the Virginia Department of Aviation, <www.doav.virginia.gov>, explains the program as well as lists a group of airports with "do it yourself" stamping including instructions where to find the required airport rubber stamp at the airport.

According to Betty Wilson, a Public Affairs Specialist with the Virginia Department of Aviation, the program has been a great success. "The multi-year program has no current end date," she said. "We will give people adequate notice so they can finish their award levels if they want." She said the reaction from pilots and airport operators has been very good. "Pilots that I have talked with say getting the stamps, especially the 'do it yourself' stamps, is like a scavenger hunt. The pilots say they like to take the time to stop and chat with the people at the airport as well. They just don't run in, get their passport stamped, and leave. Everyone is having fun with the program," she said.

According to Wilson, "Five Gold Level flight jackets have been awarded. A sixth jacket has been earned and we are waiting to present it," she said.

As you can tell, I am excited about this program. If other states don't have a similar program, I think they should consider such a program. I think it is a great way to promote aviation. Wilson said she has already been contacted by one state asking about the program. Her telephone number and e-mail address are listed on the Virginia Aviation Department's Web site for anyone interested in starting a similar program.

I now have a fun and challenging project for the summer flying season. Whether I can complete an award level this year remains to be seen, but I will have fun trying. The only time limit I have for completing an award level is before Virginia terminates the program. Plus, it is not all flying. If the weather is too bad to fly some place, or I can't fly there because of some restriction, such as the lack of general aviation access to Ronald Reagan Washington National Airport, I can drive to the listed facility to collect my required stamp. Rainy days, here I come.

Example of Terminal Digital Radar Weather Display (photo courtesy of AOPA)

Introducing Revised ATC Terms for Describing Radar Weather Echoes to Pilots

by Christine Soucy and Michael Lenz

When thunderstorm season begins this year, pilots will start hearing some very important changes in the way Air Traffic Control (ATC) describes radar weather echoes to pilots. Beginning in late spring 2006, pilots will hear ATC use four terms, "light," "moderate," "heavy," and "extreme" to describe weather radar echoes. Each term represents a precipitation intensity level paired with a dBZ range (Figure 1) to help pilots interpret the severity of the flight conditions present. (A dBZ is a measure of radar reflectivity in the form of a logarithmic power ratio [in decibels or dB] with respect to radar reflectivity factor "Z.") The four terms will be used universally in the National Airspace System (NAS) by approach controllers and Air Route Traffic Control Center (ARTCC) and Automated Flight Service Station (AFSS) specialists. The decision to standardize the terminology was easy to make because the ARTCC facilities and many of the terminal approach control facilities now have digital radar display systems with processors that can better determine the intensity (dBZ) of radar weather echoes and display that information to the controller.

Most of us are familiar with The *Weather Channel* and local news and weather broadcasts that use the

Figure 1

ATC Weather Radar Terms	dBZ Reflectivity Levels
LIGHT	< 30 dBZ(not available to ARTCC)
MODERATE	30 to 40 dBZ
HEAVY	>40 to 50 dBZ
EXTREME	>50 dBZ

Doppler NEXRAD (next generation radar) WSR 88D weather radar. Some of you may even use those broadcasts to supplement your flight planning and overall weather awareness. However, there are significant differences with how weather information is displayed on a controller's radarscope and the local news weather broadcast depictions. NEXRAD is designed to detect and display weather, but ATC radar systems are designed to detect and display aircraft. Because the NEXRAD color coding and 16 individualized precipitation levels can provide excess clutter and possibly compromise the ability of controllers to safely perform their duties, different systems for depicting weather radar echoes needed to be developed for the ATC environment.

In air route traffic control centers, NEXRAD data is fed through the Weather And Radar Processor (WARP) that organizes the 16 NEXRAD levels into four reflectivity (dBZ) categories. (See Figure 1). Reflectivity returns of less than 30 dBZ are classified as "LIGHT" and are filtered out of the center controllers' display. The remaining three categories correlate to bands of dBZ values to assist pilots in evaluating the severity of flight conditions that might be associated with those precipitation returns. Therefore, the wide range of color coding available to NEXRAD is not available to the controller and, as you can see in Figure 2, the ARTCC's WARP system does not display dBZ levels below 30, therefore center controllers will not be able to report areas of "light" weather radar echoes.

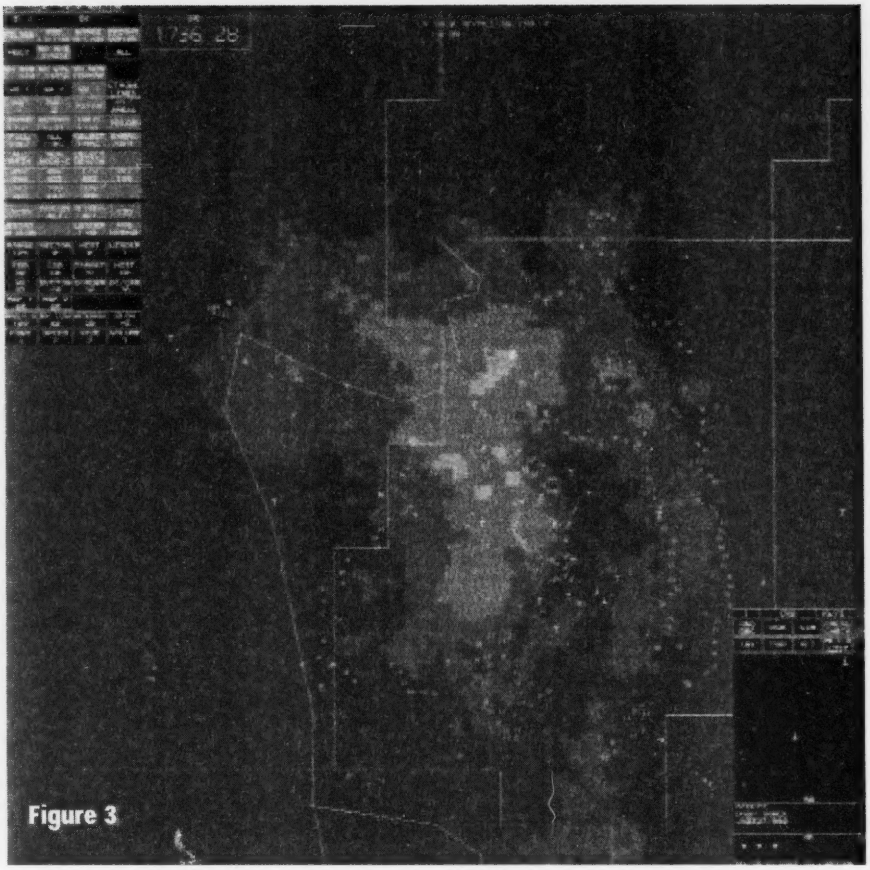


Figure 3

ARTCC Displaying both WARP/NEXRAD (color) and ARSSR (////'s and HHHH s) depicting moderate through extreme precipitation

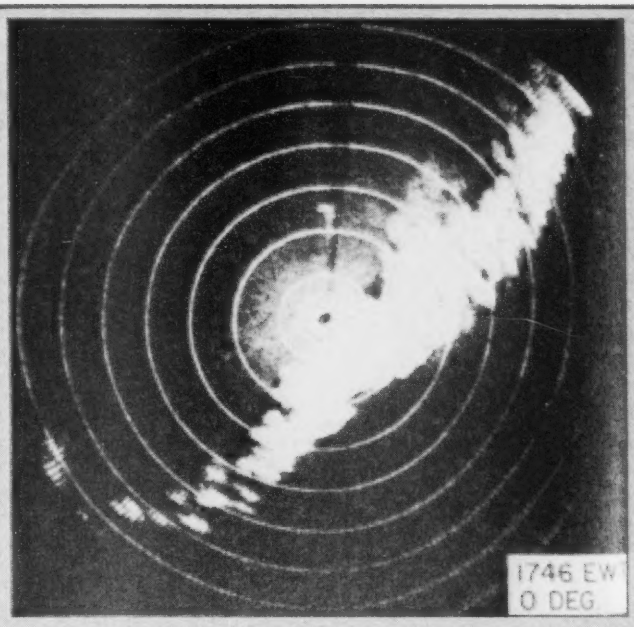
WARP/NEXRAD is a vast improvement over the Air Route Surveillance Radar (ARSR) display of weather radar echoes that center controllers used exclusively prior to the implementation of the NEXRAD type weather radars. The ARSR displays the echoes to the controller by indicating "moderate" intensities with a slash mark "/" and more intense areas with the letter "H" (see Figure 3 for an example of an ARSR and WARP display).

Figure 2

ATC Weather Radar Terms used in ARTCC	dBZ Reflectivity Levels
MODERATE	30 to 40 dBZ
HEAVY	>40 to 50 dBZ
EXTREME	>50 dBZ

In the approach control world, neither NEXRAD nor WARP is available. Instead, radar weather echoes are displayed by the Airport Surveillance Radar (ASR) systems using Common Automated Radar Terminal System (Common ARTS) or Standard Terminal Automation Replacement System (STARS) digital processors. The digitized ASR 9 and 11 systems (and some ASR 8 systems that have been digitized) paired with a weather processor, display the four weather radar echo intensity categories (see Figure 1) to the controller. Terminal facilities can and do display "light" (less than 30 dBZ) areas of precipitation.

Of course, there are no absolutes. In the universe of terminal radars, the NAS still has a few non-digital ASR systems. While these systems do a good job of displaying weather radar



Precipitation echo depiction similar to non-digital ATC display - Intensity is unknown

echoes, they lack processors that can discern the intensity of the echoes. These facilities will not be able to use the terms, "light," "moderate," "heavy," or "extreme." Controllers who work from these displays will be able to tell pilots the position of weather radar echoes but will state, "intensity unknown" because their system does not indicate what dBZ level of reflectivity is present.

In the world of ATC, weather radar echoes are all referred to as "precipitation" even though, technically, it is possible the echo could be associated with birds, volcanic ash, etc., or precipitation that is not reaching the Earth's surface (virga). Controllers will tell pilots the location of significant areas of "precipitation" when it appears that it may affect the aircraft's flight path. They will also provide assistance in the form of course deviations when requested by the pilot.

Rainfall rates (i.e., inches/hour) as they relate to intensity (dBZ) have not been correlated with the ATC displays. Therefore, the terms (light/moderate/heavy/extreme) cannot be equated/correlated to rates of rainfall per se, at this time. Generally however, the more intense the echo, the more likely there is to be greater intensities of precipitation; and when conditions are favorable for convective activity, turbulence and other weather hazards should be expected. As the intensity of precipitation increases, so too, does the likelihood of more severe weather conditions. Pilots should also remember that turbulence can be present in areas where ATC does not display precipitation at all. Therefore, pilots should always exercise care when transiting areas of known or suspected convective activity.

Pilots of light general aviation aircraft should even approach areas of "light" precipitation with caution. A rapidly growing thunderstorm can increase at a rate of 6,000 feet per minute! Think of the time-lapse photographs and weather radar loops showing building thunderstorms. "Light" precipitation could grow to "moderate" and "heavy" levels within a very short period of time, given the right conditions. The following tips are offered to assist pilots in navigating stormy skies safely.

- Request course deviations early. Don't wait until the last moment.
- Ask for information updates as needed. The ARTCC WARP/NEXRAD updates every one to six minutes. Terminal (ASR based) systems show near "real time" echoes.
- Make sure the controller understands what services you want.
- Maintain situational awareness concerning your position and the weather areas you wish to avoid.
- Include the information that you are on a heading assigned/approved by ATC for weather avoidance, when you report onto the next controller's frequency.
- Verify what additional services ATC is providing to you. Is it what you need?

PIPE UP WITH A PIREP!

Pilot reports (PIREP) of flight conditions are an invaluable source of information for other pilots and controllers as well. PIREPs should include reports of turbulence, icing, cloud tops and bases, intensity of rain, presence of hail, sleet, etc. A PIREP is often the only source of information regarding actual flight conditions a pilot may encounter. Do your part for flight safety and pipe up with a PIREP!

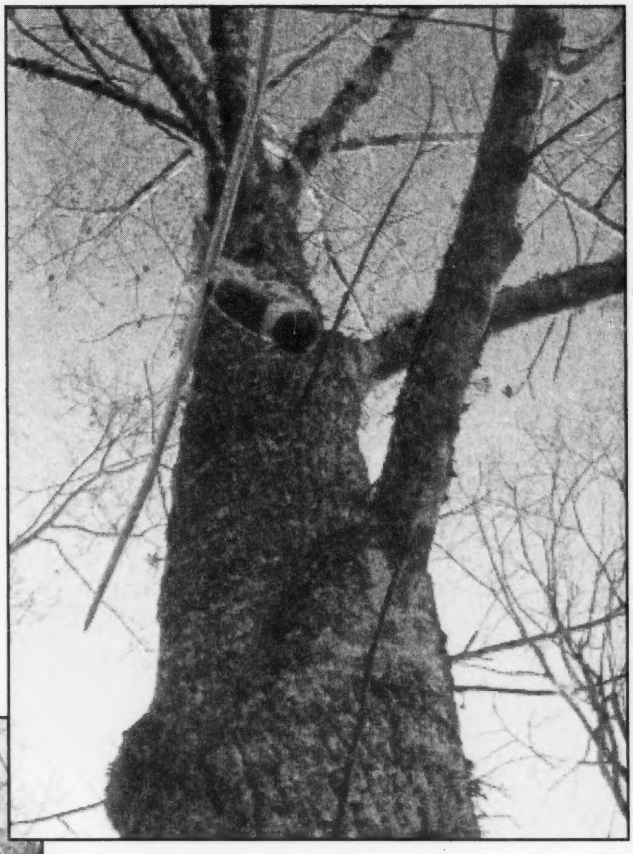
PIREP REPORTING FORMAT

For anyone who has never submitted a PIREP, the *Aeronautical Information Manual* (AIM) explains how to submit one, the uses of a PIREP, and the format a pilot should use in reporting information. AIM paragraph 7-1-21, Pilot Weather Reports, is the reference. Table 7-1-6, PIREP Element Code Chart, explains the reporting format with the elements explained.

Christine Soucy is with FAA's Office of Accident Investigation, Accident Coordination Branch and Michael Lenz is a Program Analyst in Flight Standards' General Aviation and Commercial Division.

My Last Flight of 2005

by Harlan Grey Sparrow III



It was a cool crisp morning. It was a perfect day for flying. The wind was blowing briskly, but would surely die down before my afternoon flight.

I could feel the excitement as I started my preparations for my last flight of the year. Flying a new airplane for the first time was always a thrill. What a wonderful way to end an eventful year.

A good preflight is always the start of a successful flight. Dick Hitt, a FAA Safety Program Manager (SPM) in the South Carolina Flight Standards District Office (FSDO-13,) West Columbia, South Carolina, had instilled in me the importance of taking your time and following a checklist. I checked the weather, reviewed the aircraft flight manual, checked the weight and balance, and inspected the aircraft thoroughly. Dick would be proud of my thoroughness.

As early afternoon approached, the time was right for the launch. The wind had settled into a gentle breeze. Since there was no instructor available for a checkout, I would be flying solo. Once again I checked the weather, NOTAMS, and the biggest "gotcha" of all, temporary flight restrictions (TFRs). I had a green light to go. My adrenaline was pumping as I advance the throttle slowly at first and then pushed it all the way to the firewall. The airplane was airborne instantly, catching me by surprise. Talk about being "behind the aircraft!" I was still on the ground as the plane climbed rapidly in a right turn. Hey, no problem! With 35 years of accident free flying and many thousands of hours

at the controls, I could handle it. Much to my chagrin, I discovered this new airplane did not respond to the flight controls like any other I had flown before. I quickly corrected the controls only to discover I had overcompensated, and the airplane was headed for a tree. I already had full power and could not climb any faster. As the trees rushed up to the airplane, right before I hit, I remembered what my friend Laurin Kaasa had said, "When in doubt duck!" Then there was silence.

The next day as I recovered from my injuries, a badly bruised ego and very battered pride, I listened to my friend, Rick Fletcher, a Designated Pilot Examiner and NAFI Master Certificated Flight Instructor. Rick counseled me on my obvious over confidence, accompanied by my lack of skill in flying this new aircraft. Since I needed his help in salvaging my airplane, I took my lumps with a very weak smile. Thankfully, Rick was able to remove my airplane from the tree without any further damage. Some minor repairs were in order and I was ready to fly it again.

Then it struck me! Should I fill out a NASA form, call Flight Service to report an accident, and send in a report to the FAA? After careful consideration and a quick look around, to see if there were any witnesses to the accident, I decided that none of the above was required.

I reread the flight manual, conducted another very thorough preflight and decided I was ready to try it again. After all, how hard can it be to fly a radio-controlled airplane (RC) for the second time?

Harlan Gray Sparrow III is an Aviation Safety Inspector in Flight Standards' Air Transportation Division.

Photos taken by Penni and Rick Fletcher

Aviation Maintenance Alerts

Beechcraft: A-36; Imploded Tip-Tank; ATA 2810

"(This aircraft's...) R/H Osborne Inc. auxiliary fuel tip tank imploded," states the technician (P/N 55000-105). "(It has been...) determined the probable cause was a plugged vent. Guidance suggests: (1) when parked, keep the vent capped with a pitot-like cover, (2) during preflight...open the gas cap, connect a tube to the 1/4 inch vent tube and blow, (verifying) the vent is not plugged." Obviously, a restricted vent should be cleared before flight. (The SDRS data base reflects one specific entry of insects clogging this vent.) Part Total Time: unknown.

Cessna: 172 RG; Cracked Landing Gear Actuators; ATA 3233

(The following is a composite of three separate defect reports from the same technician on the same model—but different aircraft.) The first submission states, "The pilot (for this aircraft) reported a side load on landing. On a subsequent take-off the R/H main landing gear would not fully retract. (Inspection...) found the R/H actuator (P/N 9882015-2) cracked at the forward bolt hole." Another aircraft produced a similar defect during a 100-hour inspection for the L/H retraction actuator (same part number): it was not only cracked but the upper forward bolt was found sheared. The third defect report again describes failure of another 172 aircraft's L/H main gear to retract...and the same "...actuator cracked at the forward bolt hole..." as the above discrepancy. (The reported part times on each aircraft's failed actuator were 2,893.6, unknown, and 1,407.2 hours, respectively. The SDRS data base records 28 entries related to this ATA code since 1995.) Part Total (averaged) Time: 2,150.4 hours.

Piper: PA28 and-32; Corroded Aileron Balance Weight; ATA 5751

(The following article is published as received from the Aircraft Certification Office in Atlanta, Georgia.)

"This office received a report of a corroded aileron balance weight assembly on a 1964 Piper PA-28-235 (P/N 62369-00 or 62369-01). Based on the report and our research, the following is recommended: for those Piper PA-28 and PA-32 model airplanes that meet the applicability requirements specified in Airworthiness Directive (AD) 67-12-06, accomplish the actions specified in paragraphs (a) through (c) of the AD for the aileron balance weight assembly. Do this at the next annual or 100 hour inspection (whichever comes first) and repeat every annual inspection. Consider additional inspection of the faying surface—where the assembly attaches to the aileron end-rib. More corrosion may be found."

(For additional information contact: W. O. Herderich, Aerospace Engineer, FAA Aircraft Certification Office, One Crown Center, 1895 Phoenix Blvd., Suite 450, Atlanta, GA 30349. 770-703-6082.)

Schweizer: 269C-1; Improper Throttle Cable Installation; ATA 7322

(Other than slight formatting changes, the following is published as received from the New York Aircraft Certification Office, ACO-NE170.)

"During an incident investigation, the Oakland FSDO (Flight Standards District Office) discovered the throttle control cable linkage to the carburetor throttle bell crank assembly (P/N 269A8409) on a Schweizer Aircraft Corporation Model 269C-1 had been improperly installed. The throttle cable linkage and large safety washer were improperly placed, resulting in the failure of the throttle bell crank assembly bearing and a complete separation of the linkage, which would normally be prevented by the properly placed safety washer. Possible sources for the installation error were traced to an outdated service manual (Schweizer 300CB Model 269C-1: Helicopter, Basic Handbook of Maintenance Instructions (HMI), Publication Number CSP-C1-2, Revision 20 dated November 20, 2003) and an illustrated parts catalog (Schweizer Model 269C-1 Helicopter Illustrated Parts Catalog IPC, Publication number CSP-C1-6 issued May 10,

1996). Schweizer Aircraft Corporation concurred with the FSDO findings and revised and distributed updated documents (Schweizer 300CB Model 269C-1 Helicopter, Basic Handbook of Maintenance Instructions, Publication number CSP-C1-2, Revision 21 dated December 13, 2004 and Schweizer Model 269C-1 Helicopter Illustrated Parts Catalog IPC, Publication number CSP-C1-6 revised December 13, 2004). In order to limit the possibility of repeating the throttle linkage installation error, all operators should follow the instructions in the revised HMI dated December 13, 2004.

(For further information, contact Mr. G. Duckett, Aviation Safety Engineer, FAA Aircraft Certification Office, 1600 Stewart Avenue, Suit 410, Westbury, NY 11590. Phone 516-794-5531.)

Ack Emergency Locator Transmitter (Elt): E-01; Leaking Duracell MN1300 Batteries; ATA 2562

A mechanic describes inspecting an ACK ELT (emergency locator transmitter) as required by 14 CFR part 91, section 91.207(d) during an annual aircraft inspection. "The 24 month old Duracell MN1300 batteries were found leaking, with fluid visible in the bottom of the unit. These batteries were all dated March 2009. (I) recommend replacing batteries in these type of units each 12 months or requiring a sealed battery installation." Part Total Time: 24 months.

Dunlop Wheel Assembly: AHA1814; Failed Tie-Bolt Nuts; ATA 3246

The submitter states, "A Raytheon Hawker 800XP...was taxing on a maintenance check at the Teterboro airport when the (L/H) inboard wheel's outer half separated from the inboard half. The twelve tie-bolts remained on the inboard wheel half and (were) therefore recovered. Only four tie-bolt nuts and two washers were recovered by the Port authority. An internal investigation is still ongoing, but it is suspected the tie-bolt nuts failed (P/N FN22A-524)."

Electrosystems (Starter): MZ4222; Failed Drive Splines; ATA 8011

"A pilot reported a grinding noise when the starter was engaged," states this mechanic. "(I) removed the starter and disassembled (it)...and found the drive splines on the armature shaft broken off. This is the second such defect found in one month. No apparent cause (for this defect) was found." He also describes not finding wear tolerance measures for the drive splines in the overhaul manual. (Four similar entries for this part number are present in the SDRS data base.) Part Total Time: 120.0 hours.

Goodyear (Tire): 196K08-9; Molding Damage; ATA 3244

A mechanic notes apparent damage original to a freshly mounted new tire. Specific descriptions are not provided, nor the type of aircraft. "It appears the tire was damaged in the molding process. There are two injuries in the sidewalls of the tire, almost directly across from each other. Air escapes from the tire very slowly, until the aircraft weight is placed on it. Even then, you have to listen closely to hear the air escaping." (A very similar report for this particular tire can be found in the SDRS data base.) Part Total Time: 0.0 hours.

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products and can be found on the Web at <http://www.faa.gov/avr/afs>. Click on "Maintenance Alerts" under Regulations and Guidance. The monthly contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports, Service Difficulty Reports, and Maintenance Difficulty Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Aviation Data Systems Branch (AFS-620); P.O. Box 25082; Oklahoma City, OK 73125-5029.

• GPS Update Cards

Does the FAA require any type of record entry when a front panel-mounted GPS unit is updated?

Name withheld by request.
Clinton, Maryland

The short answer is yes. A record is required with an appropriate signature.

The requirement is based upon Title 14 Code of Federal Regulations part 43, Maintenance, Preventive Maintenance, Rebuilding, and Alteration. Appendix A to part 43-Major Alterations, Major Repairs, and Preventive Maintenance, subparagraph (c) Preventive maintenance, item (32) permits the updating. Item (32) states, "Updating self-contained, front instrument panel-mounted Air Traffic Control (ATC) navigational software data bases (excluding those of automatic flight control systems, transponders, and microwave frequency distance measuring equipment (DME)) provided no disassembly of the unit is required and pertinent instructions are provided. Prior to the unit's intended use, an operational check must be performed in accordance with applicable sections of part 91 of this chapter."

Since updating is authorized as a preventive maintenance item under part 43, the part has a record keeping requirement for preventive work. That requirement is specified in section 43.9 titled, Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, Sec. 135.411(a)(1), and Sec. 135.419 of this chapter). "(a) Maintenance record entries. Except as provided in paragraphs (b) and (c) of this section, each person who maintains, performs preventive maintenance, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment containing the following information: (1) A description (or reference to data acceptable to the Administrator) of work performed. (2) The date of completion of the work performed. (3) The name of the person performing the work if other than the person specified in paragraph (a)(4) of this section. (4) If the work performed on the aircraft, airframe, aircraft engine, propeller, appliance, or component part has been performed satisfactorily, the signature, certificate number, and kind of certificate held by the person approving the work. The signature constitutes the approval for return to service only for the work performed."

Finally, section 43.7 lists the persons authorized to approve and sign off work on aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after maintenance, preventive maintenance, rebuilding, or alteration. Subparagraph (f) of the section says, "A person holding at least a private pilot certificate may approve an aircraft for return to service after performing preventive maintenance under the provisions of Sec. 43.3(g)."

• Stick and Rudder Versus the Jetsons

I love the *FAA Aviation News* and read it faithfully...best in the business! I also detect from Dean's articles that he is a true pilot who loves flying.

As for the article on FITS and TAA by Mike Gaffney, I love the idea of scenario-based training and am currently working to incorporate this into our 141 school. This is a very powerful technique and the new FAA focus is very welcome. But what is the attraction of a "hands folded in lap aircraft," especially in primary training? I can understand this for an Airbus that was designed for automated flight, not a Cessna 172. I really like flying too much! The idea of programming my plane and watching it fly somewhere seems like a nightmare out of a Jetson's cartoon. This also seems very out of sync with the new emphasis on "stick and rudder skills" to address take-off and landing, as well as maneuvering accidents. How proficient will a pilot trained in these planes become at landing. Will that be programmed in also?

In my perfect world all students would learn the first 20 hours or solo in sport plane that requires positive control and presents few distractions. (And why fly around $50K in superfluous avionics?) Then as they learn to navigate, they transition to the "starship," if desired.

Thanks for a great magazine.
David St. George, MCFI, DPE

Thanks for the complements on the magazine. As for stick and rudder versus scenario-based training, there is no right or wrong way to teach flying. Whatever works best for you and your students is all that matters, as long as it is done safely.

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov

FAA NAMES NEW FEDERAL AIR SURGEON

The FAA Administrator, Marion C. Blakey, has announced that Frederick E. Tilton, M.D., M.P.H., is the new Federal Air Surgeon. Dr. Tilton has served as Deputy Federal Air Surgeon for the past six years and replaces Jon L. Jordan, M.D., J.D. who retired last month.

As the FAA's Federal Air Surgeon, Dr. Tilton oversees the Office of Aerospace Medicine's workforce of more than 400 physicians, research scientists, nurses, program analysts, and legal instrument examiners, including the prestigious Civil Aerospace Medical Institute (CAMI). He also oversees more than 5,000 private physicians who administer FAA medical exams as designated medical examiners. His primary areas of responsibility include the medical certification of airmen, inspection of industry drug and alcohol testing programs, medical clearance of air traffic control specialists, drug and alcohol testing of FAA employees, aerospace medical and human factors research, and aerospace medical education.

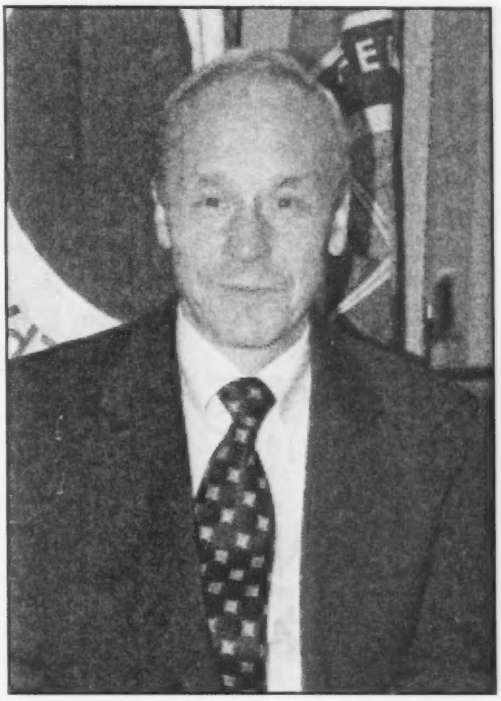
"Fred's high-caliber leadership experience and expertise in the aviation and medical fields make him ideally suited to be our nation's Federal Air Surgeon," said Blakey.

Prior to joining the FAA in 1999, Dr. Tilton was the corporate medical director for The Boeing Company in Seattle. Under his leadership, his department received the American College of Occupational Medicine's prestigious Corporate Health Achievement Award as one of the best industrial medicine programs in the nation. From 1988 to 1991, Dr. Tilton was the regional medical director at Boeing's Wichita, Kansas, facility.

During a 26-year career with the U.S. Air Force, Dr. Tilton logged 4,000 hours as a command pilot flying trainers, transports, reconnaissance aircraft, and fighters. He flew a wide variety of aircraft, including the F-15, T-38, RB-57F, C-141 and the B-47. He spent 11 years in the medical corps where he commanded a clinic, was an F-15 physician-pilot and technical consultant, and held key positions such as Chief of Flight Medicine in the Surgeon General's Office. He retired from the Air Force in 1988 with the rank of colonel.

A graduate of the U.S. Military Academy, Dr. Tilton received both an M.S. and a M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas.

He is board-certified by the American Board of Preventive Medicine in both Aerospace and Occupational Medicine. He is a Fellow of Aerospace Medical Association and the American College of Preventive Medicine.



Frederick E. Tilton, M.D., M.P.H (Mario Toscano photo)

DC AIRSPACE TRAINING FOR PILOTS

To help general aviation pilots understand the complexities of today's stricter airspace rules and reduce violations of restricted airspace, the FAA is offering special online training for anyone who flies in or near restricted areas, especially around Washington, DC.

This training, accessed easily through a home computer and taken at a pilot's own pace, provides detailed information on the requirements and procedures required to operate in the Washington, DC, Metropolitan Area Flight Restricted Zone (FRZ), the Washington DC Metropolitan Area Air Defense Identification Zone (ADIZ) and other restricted airspace. Pilots who complete the web-based course and pass a 25-question multiple-choice test will receive a certificate of completion. The course is available at <http://www.faasafety.gov>.

"Very few pilots actually intend to fly into restricted airspace, but even an inadvertent violation could have serious consequences," said FAA Administrator Marion C. Blakey. "Pilots are strongly encouraged to take the training to help them understand how to avoid getting into a difficult situation."

The training is part of a broad effort by the FAA to reduce the number of violations of Washington airspace. Since June 2004, the FAA has expanded its educational efforts with the general aviation community, including the Aircraft Owners and Pilots Association (AOPA)/Air Safety Foundation. Highly experienced air traffic control specialists have conducted outreach programs, including visits to flight schools, local flying clubs, local law enforcement aviation units, and military

bases. As a result, the number of restricted airspace violations has dropped over the past year.

The training provides detailed guidance on requirements and procedures for flying in the Washington area, as well as a review of requirements and procedures for operating in other types of special use airspace. The course assumes pilots have a good understanding of aircraft operation, air navigation and air traffic control procedures. Most of the course's graphics incorporate actual navigation charts. The FAA estimates the total time to take the course and the test is about an hour.

Even after completing the test, pilots who intend to operate in this airspace must file a flight plan, be in contact with FAA air traffic control, and obtain and continuously use a special transponder identification code assigned by air traffic controllers, Blakey added.

The FRZ extends approximately 15 nautical miles (about 17 statute miles) around the Ronald Reagan Washington National Airport, located in Arlington County, VA, four miles from downtown Washington. The FRZ is not a perfect circle. The ADIZ surrounds the FRZ, and extends in radius around the three major metropolitan airports: Reagan Washington National, Thurgood Marshall Baltimore-Washington International, and Dulles International. The ADIZ extends approximately 20 nautical miles (about 23 statute miles) around Dulles and Baltimore-Washington, and 30 nautical miles (about 35 statute miles) around Washington National Airport.

AD FOR CESSNA MODELS 208 AND 208B AIRPLANES

On January 12 the *Federal Register* published an Airworthiness Directive (AD), which the FAA adopted for all The Cessna Aircraft Company (Cessna) Models 208 and 208B airplanes. This AD requires owner/operators to install the pilot assist handle (part number (P/N) SK208-146-2) (or FAA-approved equivalent part number) and deicing boots on the cargo pod and landing gear fairings (part number (P/N) AK208-6C) (or FAA-approved equivalent part number); and make changes to the Pilot's Operating Handbook (POH) and FAA-approved Airplane Flight Manual (AFM). This AD results from reports of several accidents involving the affected airplanes during operations in flight and in ground icing conditions. We are issuing this AD to provide a safe method to detect ice, snow, frost, or slush adhering to the upper wing (a critical surface) prior to takeoff; and to reduce drag in-flight by shedding ice on the cargo pod and landing gear fairings. Ice adhering to the upper wing surface, cargo pod, or landing gear fairings could result in a reduction in airplane performance with the consequences that the airplane cannot perform a safe takeoff or climb. This AD became effective on February 22, 2006.

For more information, the Airworthiness Directives can be found at <http://www.faa.gov/mechanics/>

FRESNO WINGS WEEKEND

If you are in the Fresno, California, area on Saturday and Sunday, April 22 and 23, you should stop by the Fresno Executive-Chandler Airport (FCH) on Kearney Boulevard in Fresno for the Central Valley's VI annual Wings Weekend. The hours are from 7 am to 5 pm each day. Sponsored by the Fresno Flight Standards District Office (FSDO) and the Central Valley Aviation Association, the Wings Weekend 2006's free safety seminars and available free flight instruction meet the requirements for completing the FAA's Pilot Proficiency Award Program. The safety seminars are scheduled to be held in the airport administrative building. In addition to the seminars, local aviation vendors will have exhibits and displays.

The Wings Program

More commonly known as the FAA's Wings Program, the Pilot Proficiency Award Program, as outlined in FAA Advisory Circular (AC) 61-91H, not only allows pilots who meet the appropriate requirements in the AC to qualify for one of the Pilot Proficiency Award levels from I to XX, but successful completion of one of the award levels can be used to meet the requirement of a Flight Review as outlined in 14 Code of Federal Regulations section 61.56(e). Volunteer flight instructors will work with participating pilots to complete the training requirements during the weekend. The goal is to allow pilots to complete all of the training requirements during this one weekend.

Gyro-1

Scheduled to be at the Wings Weekend, is the FAA's Gyro-1 disorientation demonstrator from the Civil Aerospace Medical Institute in Oklahoma City. If you think you know which way is up, you need to stop by the airport and take a "flight" in Gyro-1. You might be surprised. Designed to demonstrate the effects of vertigo, the "airplane" takes you on a cross-country flight to show you how vertigo can effect your flight control and decision making.

Remember, a Proficient Pilot is a Safe Pilot. Earn your Wings in one weekend!

For More Information

If you are driving to the airport, according to the FAA Safety Program's Web site for the event, you should take Highway 99 to Fresno Street and then follow the signs to the airport. For more information about the Wings Weekend, you can contact Bill Campbell at 559-299-4125. His email is billptl@juno.com or bcampbell@tbmmi.com. The direct URL for the FAA Safety Program's Web site for this event is <http://www.faasafety.gov/SPANS/event_details.aspx?eid=9451>

Editor's Runway

from the pen of H Dean Chamberlain

A Reminder

Life is great this time of year. Each year as we work on our March-April *FAA Aviation News* issue— we call it our "Sun 'n Fun®" issue because we print extra copies to send to the FAA Safety Center at Lakeland, Florida, for distribution during the Sun 'n Fun Fly-In®. We start getting excited because the 2006 air show and flying season is just around the corner. For us, Sun 'n Fun® kicks off the air show season each year. This year's dates are April 4-10. Because Sun 'n Fun®, is the second largest fly-in in the country—only AirVenture® in Oshkosh, Wisconsin, is larger—we want to highlight a special aviation reminder for our many readers and those attending the fly-in.

We also want to remind everyone of the phase out date of the satellite-based monitoring for those emergency locator transmitters (ELT) transmitting on 121.5 MHz in February 2009. As explained in my article about personal locator beacons on page 20, if your aircraft has only a 121.5 MHz ELT after that date, in case of an accident where your ELT activates, you will have to depend upon overflying aircraft or a nearby ground-based receiver on that frequency to detect your activated ELT. The solution for maintaining your space-based satellite ELT coverage beyond that date is to upgrade to an ELT that transmits on 406 MHz. If you currently have or plan on purchasing a 406 MHz ELT, please be aware of the government requirement to register your 406 MHz ELT and its code with the National Oceanic and Atmospheric Administration (NOAA) as outlined in the information provided with your purchase. You can also register your ELT online at <www.sarsat.noaa.gov/> and click on Beacon Registration for information and forms. That site also provides all the information you might want to learn about the satellite-based distress alerting system worldwide.

Buyer Beware

In December, I decided to get serious about adding a glider instructor rating in 2006 to my other instructor ratings. So I purchased a computer-based training disk from one of the major aviation-training publishers to review the current flight instructor training information. The package listed the software version, but since I had no idea what was the current version, I purchased the package from my local fixed based operator (FBO). Silly me. I was told the publisher would provide any required update. When I tried to update the material online using the provided information, I received a message that the disk was out of date as well as any update for it. After contacting and explaining the situation to the company's customer service, I had to scan my receipt to prove I had only purchased the disk a few days before my call, and I had to send the copy of the receipt to the company. I was told an update would be sent to me. It has been several weeks since I was told that. Because of the holidays, I am willing to give the company a little more time. Then to add insult to injury, the disk does not have the specific information for the add-on glider rating I wanted. The moral of this story is that in today's computerized world, it is vital that you read and understand what version of any software you buy, how to get any updates you may need, the time period for any free update/s, and if you are buying to fulfill a very specialized training need, the required material is included. As of this writing, I may have to go back to the old-fashion training method of finding and reading the appropriate training material. Fortunately, I work for the organization that writes the material. Have a safe 2006 flying season.

U.S. Department
of Transportation

**Federal Aviation
Administration**

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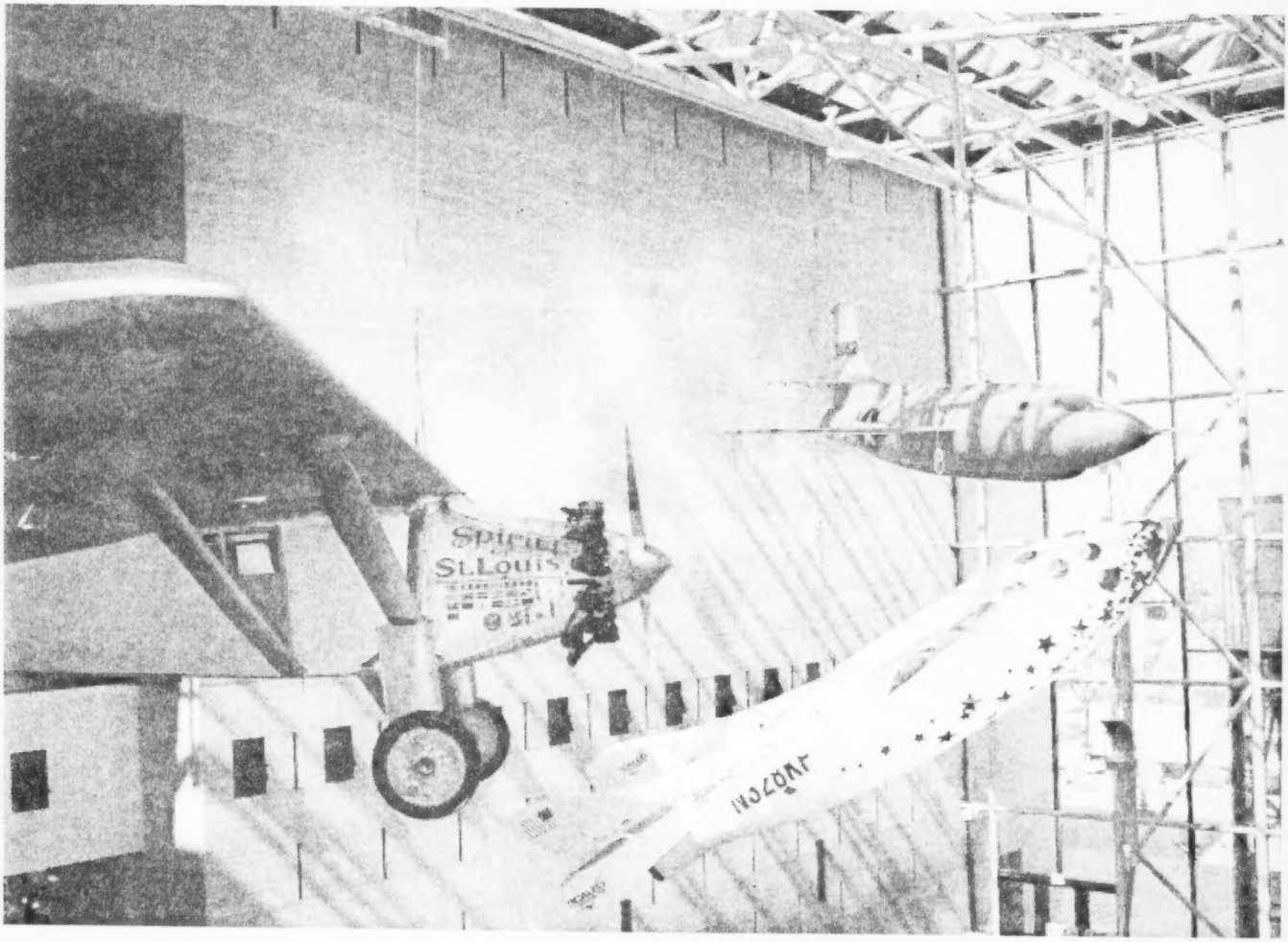
DO NOT DELAY -- CRITICAL TO FLIGHT SAFETY!